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SUPERSONIC INVESTIGATION OF NOZZLE HINGE MOMENTS OF A MODIFIED SATURN C-1 MODEL WITH AND WITHOUT JET FLOW

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SUPERSONIC INVESTIGATION OF NOZZLE HINGE MOMENTS OF A MODIFIED SATURN C-1 MODEL WITH AND WITHOUT JET FLOW

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INTRODUCTION

The pressure distributions on the external surfaces of the nozzles, base, and shrouds of a modified C-1 Saturn vehicle with and without simulated jet flow are presented in tables II to XVI.

These tables constitute a supplement to NASA TN D-1962 wherein nozzle hinge-moment coefficients derived from the tabulated data for representative configurations are presented as a function of various parameters. Table I states the test conditions for each configuration investigated.

SYMBOLS

C_p	pressure coefficient, $\frac{p_l - p_\infty}{q_\infty}$
p_j	jet-exit static pressure, lb/sq ft
p_l	local static pressure, lb/sq ft
p_∞	free-stream static pressure, lb/sq ft
q_∞	free-stream dynamic pressure, lb/sq ft
r	radial distance from model center line, in.
x	distance forward of nozzle exit or end of shroud, in.
y	radial distance from nozzle center line, in.
α	angle of attack, deg
ϕ	meridian angle, deg

TABLE I.- TEST CONDITIONS FOR EACH CONFIGURATION INVESTIGATED

Test conditions (nominal values)					Tables for which data are presented for configuration:*														
M_∞	α, deg	R, per ft	q_∞, lb/sq ft	p_j/p_∞	A-1	A-2	A-3	A-4	B-1	B-2	B-3	B-4	C-1	C-2	C-3	C-4	D-1	E-1	F-5
1.60	Range**	2.9×10^{-6}	645	0	II(a)	III(a)	IV(a)	V(a)	VI(a)	VII(a)	VIII(a)	IX(a)	X(a)	XI(a)	XII(a)	XIII(a)	XIV(a)		XVI(a)
				2.8	II(a)														
				3.0		III(a)			VI(a)	VII(a)	VIII(a)	IX(a)	X(a)	XI(a)	XII(a)	XIII(a)	XIV(a)		XVI(a)
				3.4	II(a)		IV(a)	V(a)	VI(a)	VII(a)	VIII(a)	IX(a)	X(a)	XI(a)	XII(a)	XIII(a)	XIV(a)		XVI(a)
				3.9	II(a)														
				4.5	II(a)														
				4.8	II(a)														
				6.5	II(a)														
2.00	Range	2.5×10^{-6}	553	0	II(b)	III(b)	IV(b)	V(b)	VI(b)	VII(b)	VIII(b)	IX(b)	X(b)	XI(b)	XII(b)	XIII(b)			XVI(b)
				5.1	II(b)														
				5.5		III(b)													
				6.3	II(b)		IV(b)	V(b)	VI(b)	VII(b)	VIII(b)	IX(b)	X(b)	XI(b)	XII(b)	XIII(b)			XVI(b)
				7.1	II(b)														
				8.3	II(b)														
				8.7	II(b)														
				11.9	II(b)														
2.40	Range	2.0×10^{-6}	435	0	II(c)	III(c)	IV(c)	V(c)	VI(c)	VII(c)	VIII(c)	IX(c)	X(c)	XI(c)	XII(c)	XIII(c)			XVI(c)
				9.4	II(c)														
				10.1		III(c)													
				11.4	II(c)		IV(c)	V(c)	VI(c)	VII(c)	VIII(c)	IX(c)	X(c)	XI(c)	XII(c)	XIII(c)			XVI(c)
				12.8	II(c)														
				15.4	II(c)														
				16.0	II(c)														
				21.4	II(c)														
		2.4	540	9.3	II(c)														
		2.4	540	12.8	II(c)														
		1.5	327	15.3	II(c)														
		1.5	327	21.4	II(c)														
2.87	Range	1.6×10^{-6}	304	0	II(d)	III(d)	IV(d)	V(d)	VI(d)	VII(d)	VIII(d)	IX(d)	X(d)	XI(d)	XII(d)	XIII(d)		XV(a)	XVI(d)
				18.9	II(d)														
				20.5		III(d)													
				23.6	II(d)		IV(d)	V(d)	VI(d)	VII(d)	VIII(d)	IX(d)	X(d)	XI(d)	XII(d)	XIII(d)		XV(a)	XVI(d)
				25.3	II(d)														
				31.2	II(d)														
				42.2	II(d)														

*CONFIGURATION CODE

[Letters A, B, C, . . . refer to nozzle conditions; numbers 1, 2, 3, . . . refer to shroud design]

	Nozzle
A	Nozzles 1, 2, 3, and 4 gimbaled 6° outward.
B	Nozzles 2 and 3 gimbaled 12° outward; nozzles 1 and 4 gimbaled 6° outward.
C	Nozzles 2 and 3 gimbaled 3° inward; nozzles 1 and 4 gimbaled 6° outward.
D	Nozzle 1 plugged; nozzles 2, 3, and 4 gimbaled 3° inward.
E	Nozzle 7 plugged; nozzles 1, 2, 3, and gimbaled 12° outward.
F	Nozzle 1 plugged; nozzles 2, 3, and 4 gimbaled 6° outward.

	Shroud
1	Basic shroud length; single flare.
2	Basic shroud length; double flare.
3	Shroud cut to heat shield.
4	Shroud cut to fire wall.
5	Pressure shroud (basic shroud length; single flare instrumented with 37 orifices).

**Range of α: 0°, -2°, -4°, and -8°.

TABLE II

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2941	-.2953	-.2922	-.2922	-.2955	-.2955	-.2955	-.2953
	0.30		-.2953	-.2966	-.3003	-.2858	-.2986	-.2970	-.2955	-.2941
	0.51		-.2941	-.2531	-.3003	-.2890	-.3003	-.2955	-.2955	-.2941
	0.73		-.2941		-.2986		-.2986		-.2922	
Nozzle 3	0.09		-.2978	-.2978	-.3003		-.3003		-.2986	-.2978
	0.30		-.2978	-.2953	-.2986		-.3003		-.3018	-.2978
	0.51		-.2978		-.3003		-.3003		-.3018	
	0.73		-.2966				-.3018			
Nozzle 6	0.09		-.3136				-.3119		-.2992	
	0.30		-.3029				-.3029		-.3046	
	0.51		-.3046				-.3046		-.3046	
	0.73								-.3046	
Shroud	0.13									.0871
	0.41									.1589
	0.62								-.3281	.2309
	0.81								-.3532	
	1.00								-.3029	.2866
Heat Shield		0.68								-.2992
		0.79								-.3011
		0.91								-.3029
		1.13	-.3046							
		1.25	-.3046							
		1.38	-.3046							
Star		0.00								
		0.12				-.2328				
		0.23				-.2363				-.2221

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2943	-.2955	-.2893	-.2893	-.2924	-.2924	-.2924	-.2943
	0.30		-.2943	-.2968	-.2972	-.2828	-.2941	-.2924	-.2909	-.2943
	0.51		-.2943	-.2535	-.2972	-.2845	-.2972	-.2924	-.2909	-.2943
	0.73		-.2943		-.2924		-.2924		-.2732	
Nozzle 3	0.09		-.2968	-.2968	-.2572		-.2941		-.2765	-.2980
	0.30		-.2968	-.2943	-.2941		-.2972		-.2972	-.2943
	0.51		-.2968		-.2957		-.2972		-.2972	
	0.73		-.2968				-.2972			
Nozzle 6	0.09		-.3107				-.3089		-.2999	
	0.30		-.3017				-.3034		-.3053	
	0.51		-.3034				-.3034		-.3034	
	0.73								-.3053	
Shroud	0.13									.0926
	0.41									.1535
	0.62								-.3250	.2180
	0.81								-.3465	
	1.00								-.2963	.2701
Heat Shield		0.68								-.2999
		0.79								-.2999
		0.91								-.3017
		1.13	-.3034							
		1.25	-.3034							
		1.38	-.3034							
Star		0.00								
		0.12				-.2444				
		0.23				-.2479				-.2337

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2924	-.2937	-.2892	-.2876	-.2940	-.2940	-.2924	-.2937
	0.30		-.2937	-.2937	-.2957	-.2844	-.2940	-.2940	-.2909	-.2924
	0.51		-.2937	-.2529	-.2957	-.2876	-.2940	-.2924	-.2909	-.2924
	0.73		-.2937		-.2940		-.2940		-.2876	
Nozzle 3	0.09		-.2949	-.2949	-.2957		-.2957		-.2940	-.2962
	0.30		-.2949	-.2924	-.2957		-.2988		-.2972	-.2949
	0.51		-.2949		-.2940		-.2988		-.2972	
	0.73		-.2949				-.2988			
Nozzle 6	0.09		-.3061				-.3025		-.2954	
	0.30		-.2971				-.2989		-.3006	
	0.51		-.3006				-.3006		-.3006	
	0.73								-.3025	
Shroud	0.13									.0853
	0.41									.1406
	0.62								-.3168	.1889
	0.81								-.3346	
	1.00								-.2989	.2211
Heat Shield		0.68								-.2971
		0.79								-.2989
		0.91								-.2989
		1.13	-.2989							
		1.25	-.2989							
		1.38	-.2989							
Star		0.00								
		0.12				-.2631				
		0.23				-.2650				-.2507

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.3053	-.3066	-.2979	-.2979	-.3075	-.3058	-.3058	-.3053
	0.30		-.3053	-.3078	-.3075	-.2994	-.3075	-.3075	-.3042	-.3053
	0.51		-.3066	-.2633	-.3075	-.3010	-.3075	-.3042	-.3042	-.3041
	0.73		-.3041		-.3058		-.3075		-.3042	
Nozzle 3	0.09		-.3053	-.3053	-.3075		-.3090		-.3027	-.3090
	0.30		-.3090	-.3053	-.3058		-.3090		-.3075	-.3078
	0.51		-.3078		-.3058		-.3090		-.3075	
	0.73		-.3078				-.3106			
Nozzle 6	0.09		-.3106				-.3142		-.3070	
	0.30		-.3106				-.3159		-.3177	
	0.51		-.3142				-.3177		-.3196	
	0.73								-.3196	
Shroud	0.13									.0839
	0.41									.1306
	0.62								-.3284	.1736
	0.81								-.3320	
	1.00								-.3087	.1952
Heat Shield		0.68								-.3123
		0.79								-.3123
		0.91								-.3142
		1.13	-.3123							
		1.25	-.3123							
		1.38	-.3123							
Star		0.00								
		0.12				-.2909				
		0.23				-.2909				-.2836

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 2.8$										
Nozzle 2	0.09		-.3473	-.3524	-.3462	-.3450	-.3438	-.3514	-.3438	-.3438
	0.30		-.3524	-.3558	-.3551	-.3438	-.3514	-.3514	-.3475	-.3420
	0.51		-.3507	-.3541	-.3538	-.3323	-.3514	-.3526	-.3475	-.3403
	0.73		-.3473		-.3500		-.3462		-.3462	
Nozzle 3	0.09		-.3473	-.3473	-.3500		-.3526		-.3500	-.3524
	0.30		-.3507	-.3456	-.3500		-.3563		-.3563	-.3524
	0.51		-.3507		-.3514		-.3538		-.3551	
	0.73		-.3507				-.3500			
Nozzle 6	0.09		-.3301				-.3391		-.3374	
	0.30		-.3337				-.3355		-.3445	
	0.51		-.3265				-.3301		-.3445	
	0.73								-.3391	
Shroud	0.13									.0913
	0.41									.1619
	0.62								-.3410	.2270
	0.81								-.3554	
	1.00								-.2957	.2903
Heat Shield		0.68								-.3247
		0.79								-.3265
		0.91								-.3228
		1.13	-.3337							
		1.25	-.3337							
		1.38	-.3301							
Star		0.00	-.2596							
		0.12				-.2886				-.2867
		0.23				-.3011				-.3030

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 2.8$										
Nozzle 2	0.09		-.3486	-.3554	-.3517	-.3453	-.3492	-.3504	-.3453	-.3467
	0.30		-.3520	-.3571	-.3543	-.3428	-.3529	-.3517	-.3467	-.3450
	0.51		-.3520	-.3554	-.3529	-.3289	-.3504	-.3517	-.3453	-.3450
	0.73		-.3503		-.3492		-.3441		-.3453	
Nozzle 3	0.09		-.3520	-.3503	-.3517		-.3517		-.3504	-.3554
	0.30		-.3554	-.3503	-.3529		-.3605		-.3543	-.3554
	0.51		-.3554		-.3517		-.3580		-.3543	
	0.73		-.3554				-.3529			
Nozzle 6	0.09		-.3357				-.3411		-.3357	
	0.30		-.3357				-.3376		-.3447	
	0.51		-.3357				-.3357		-.3447	
	0.73								-.3393	
Shroud	0.13									.0943
	0.41									.1540
	0.62								-.3376	.2065
	0.81								-.3430	
	1.00								-.2923	.2679
Heat Shield		0.68								-.3376
		0.79								-.3393
		0.91								-.3357
		1.13	-.3430							
		1.25	-.3411							
		1.38	-.3393							
Star		0.00	-.2634							
		0.12				-.2923				-.2923
		0.23				-.3086				-.3086

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 2.8$										
Nozzle 2	0.09		-.3451	-.3503	-.3525	-.3476	-.3603	-.3551	-.3488	-.3468
	0.30		-.3486	-.3520	-.3525	-.3386	-.3564	-.3564	-.3513	-.3468
	0.51		-.3486	-.3486	-.3513	-.3297	-.3488	-.3539	-.3513	-.3468
	0.73		-.3468		-.3513		-.3412		-.3488	
Nozzle 3	0.09		-.3520	-.3503	-.3551		-.3589		-.3551	-.3555
	0.30		-.3537	-.3503	-.3564		-.3615		-.3576	-.3555
	0.51		-.3537		-.3551		-.3589		-.3564	
	0.73		-.3537				-.3551			
Nozzle 6	0.09		-.3376				-.3393		-.3322	
	0.30		-.3358				-.3358		-.3431	
	0.51		-.3393				-.3358		-.3412	
	0.73								-.3412	
Shroud	0.13									.0852
	0.41									.1430
	0.62								-.3304	.1900
	0.81								-.3358	
	1.00								-.2978	.2226
Heat Shield		0.68								-.3431
		0.79								-.3448
		0.91								-.3448
		1.13	-.3448							
		1.25	-.3448							
		1.38	-.3448							
Star		0.00	-.2672							
		0.12				-.2997				-.2960
		0.23				-.3141				-.3141

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 645$; $p_j/p_\infty = 2.8$										
Nozzle 2	0.09		-.3483	-.3517	-.3525	-.3449	-.3664	-.3615	-.3539	-.3534
	0.30		-.3517	-.3534	-.3539	-.3310	-.3589	-.3603	-.3564	-.3534
	0.51		-.3517	-.3500	-.3525	-.3361	-.3539	-.3576	-.3551	-.3534
	0.73		-.3517		-.3525		-.3488		-.3551	
Nozzle 3	0.09		-.3534	-.3551	-.3589		-.3640		-.3564	-.3551
	0.30		-.3534	-.3551	-.3589		-.3627		-.3551	-.3534
	0.51		-.3534		-.3576		-.3589		-.3551	
	0.73		-.3551				-.3539			
Nozzle 6	0.09		-.3390				-.3499		-.3228	
	0.30		-.3426				-.3445		-.3517	
	0.51		-.3517				-.3445		-.3517	
	0.73								-.3517	
Shroud	0.13									.0844
	0.41									.1279
	0.62								-.3300	.1713
	0.81								-.3300	
	1.00								-.3082	.1948
Heat Shield		0.68								-.3572
		0.79								-.3572
		0.91								-.3572
		1.13	-.3572							
		1.25	-.3572							
		1.38	-.3553							
Star		0.00	-.2738							
		0.12				-.3138				-.3011
		0.23				-.3228				-.3192

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3261	-.3312	-.3300	-.3287	-.3261	-.3300	-.3287	-.3244
	0.30		-.3295	-.3346	-.3375	-.3261	-.3312	-.3337	-.3312	-.3209
	0.51		-.3295	-.3346	-.3349	-.3148	-.3324	-.3337	-.3300	-.3192
	0.73		-.3278		-.3312		-.3287		-.3287	
Nozzle 3	0.09		-.3312	-.3312	-.3361		-.3375		-.3287	-.3346
	0.30		-.3329	-.3278	-.3375		-.3425		-.3375	-.3365
	0.51		-.3346		-.3375		-.3437		-.3388	
	0.73		-.3346				-.3412			
Nozzle 6	0.09		-.3017				-.3178		-.3178	
	0.30		-.3053				-.3142		-.3267	
	0.51		-.3017				-.3088		-.3250	
	0.73								-.3178	
Shroud	0.13									.0909
	0.41									.1609
	0.62								-.3250	.2308
	0.81								-.3519	
	1.00								-.2928	.2881
Heat Shield		0.68								-.3017
		0.79								-.3034
		0.91								-.3017
		1.13	-.3088							
		1.25	-.3053							
		1.38	-.3017							
Star		0.00	-.2139							
		0.12				-.2568				-.2568
		0.23				-.2801				-.2801

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3335	-.3388	-.3360	-.3321	-.3296	-.3333	-.3284	-.3301
	0.30		-.3371	-.3457	-.3384	-.3257	-.3321	-.3321	-.3296	-.3284
	0.51		-.3352	-.3405	-.3360	-.3130	-.3321	-.3309	-.3284	-.3284
	0.73		-.3335		-.3309		-.3284		-.3270	
Nozzle 3	0.09		-.3388	-.3371	-.3384		-.3384		-.3296	-.3422
	0.30		-.3405	-.3371	-.3384		-.3487		-.3360	-.3422
	0.51		-.3405		-.3384		-.3448		-.3360	
	0.73		-.3405				-.3384			
Nozzle 6	0.09		-.3152				-.3298		-.3262	
	0.30		-.3189				-.3262		-.3335	
	0.51		-.3206				-.3225		-.3335	
	0.73								-.3262	
Shroud	0.13									.0883
	0.41									.1503
	0.62								-.3371	.2070
	0.81								-.3499	
	1.00								-.2988	.2690
Heat Shield		0.68								-.3243
		0.79								-.3262
		0.91								-.3243
		1.13	-.3262							
		1.25	-.3262							
		1.38	-.3243							
Star		0.00	-.2275							
		0.12				-.2732				-.2678
		0.23				-.2951				-.2934

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3333	-.3403	-.3349	-.3297	-.3412	-.3373	-.3322	-.3333
	0.30		-.3369	-.3403	-.3349	-.3246	-.3386	-.3373	-.3335	-.3333
	0.51		-.3369	-.3386	-.3349	-.3119	-.3322	-.3373	-.3335	-.3350
	0.73		-.3333		-.3349		-.3246		-.3322	
Nozzle 3	0.09		-.3403	-.3386	-.3386		-.3449		-.3361	-.3455
	0.30		-.3437	-.3386	-.3386		-.3474		-.3386	-.3455
	0.51		-.3437		-.3386		-.3437		-.3386	
	0.73		-.3420				-.3373			
Nozzle 6	0.09		-.3201				-.3256		-.3256	
	0.30		-.3201				-.3201		-.3310	
	0.51		-.3220				-.3183		-.3274	
	0.73								-.3237	
Shroud	0.13									.0830
	0.41									.1411
	0.62								-.3274	.1848
	0.81								-.3366	
	1.00								-.2983	.2229
Heat Shield		0.68								-.3274
		0.79								-.3293
		0.91								-.3274
		1.13	-.3328							
		1.25	-.3310							
		1.38	-.3310							
Star		0.00	-.2294							
		0.12				-.2748				-.2710
		0.23				-.2966				-.2947

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3355	-.3372	-.3348	-.3272	-.3526	-.3462	-.3386	-.3389
	0.30		-.3389	-.3389	-.3360	-.3120	-.3424	-.3462	-.3386	-.3389
	0.51		-.3389	-.3372	-.3348	-.3157	-.3348	-.3411	-.3374	-.3389
	0.73		-.3389		-.3348		-.3310		-.3374	
Nozzle 3	0.09		-.3407	-.3407	-.3436		-.3526		-.3374	-.3407
	0.30		-.3407	-.3407	-.3436		-.3500		-.3374	-.3425
	0.51		-.3407		-.3411		-.3436		-.3374	
	0.73		-.3407				-.3374			
Nozzle 6	0.09		-.3231				-.3323		-.3196	
	0.30		-.3250				-.3286		-.3340	
	0.51		-.3340				-.3250		-.3323	
	0.73								-.3340	
Shroud	0.13									.0848
	0.41									.1302
	0.62								-.3269	.1740
	0.81								-.3286	
	1.00								-.3067	.1977
Heat Shield		0.68								-.3396
		0.79								-.3413
		0.91								-.3396
		1.13	-.3396							
		1.25	-.3396							
		1.38	-.3396							
Star		0.00	-.2321							
		0.12				-.2867				-.2721
		0.23				-.3050				-.2977

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.9$										
Nozzle 2	0.09		-.3202	-.3227	-.3158	-.3158	-.3143	-.3206	-.3191	-.3154
	0.30		-.3227	-.3251	-.3270	-.3158	-.3191	-.3206	-.3175	-.3129
	0.51		-.3202	-.2806	-.3254	-.3031	-.3191	-.3206	-.3175	-.3104
	0.73		-.3214		-.3191		-.3158		-.3158	
Nozzle 3	0.09		-.3251	-.3227	-.3286		-.3286		-.3175	-.3276
	0.30		-.3264	-.3202	-.3286		-.3318		-.3286	-.3289
	0.51		-.3276		-.3286		-.3334		-.3286	
	0.73		-.3289				-.3366			
Nozzle 6	0.09		-.2900				-.3115		-.3133	
	0.30		-.2972				-.3062		-.3205	
	0.51		-.2919				-.2990		-.3205	
	0.73								-.3115	
Shroud	0.13									.0994
	0.41									.1672
	0.62								-.3133	.2424
	0.81								-.3419	
	1.00								-.2883	.2977
Heat Shield		0.68								-.2900
		0.79								-.2936
		0.91								-.2865
		1.13	-.2972							
		1.25	-.2936							
		1.38	-.2900							
Star		0.00								
		0.12				-.2365				
		0.23				-.2669				-.2579

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.9$										
Nozzle 2	0.09		-.3201	-.3226	-.3221	-.3221	-.3157	-.3221	-.3205	-.3139
	0.30		-.3213	-.3275	-.3269	-.3157	-.3205	-.3205	-.3188	-.3114
	0.51		-.3188	-.2793	-.3253	-.2998	-.3188	-.3205	-.3157	-.3089
	0.73		-.3176		-.3188		-.3157		-.2982	
Nozzle 3	0.09		-.3250	-.3238	-.2742		-.3317		-.3125	-.3275
	0.30		-.3263	-.3213	-.3317		-.3380		-.3269	-.3287
	0.51		-.3263		-.3332		-.3380		-.3284	
	0.73		-.3263				-.3365			
Nozzle 6	0.09		-.2937				-.3117		-.3134	
	0.30		-.3027				-.3063		-.3188	
	0.51		-.3044				-.3063		-.3170	
	0.73								-.3117	
Shroud	0.13									.0973
	0.41									.1580
	0.62								-.3153	.2222
	0.81								-.3419	
	1.00								-.2902	.2776
Heat Shield		0.68								-.3027
		0.79								-.3063
		0.91								-.3044
		1.13	-.3080							
		1.25	-.3063							
		1.38	-.3044							
Star		0.00								
		0.12				-.2456				
		0.23				-.2742				-.2669

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.9$										
Nozzle 2	0.09		-.3206	-.3243	-.3211	-.3164	-.3259	-.3259	-.3211	-.3169
	0.30		-.3218	-.3268	-.3243	-.3147	-.3274	-.3259	-.3195	-.3169
	0.51		-.3206	-.2786	-.3243	-.2989	-.3211	-.3243	-.3195	-.3144
	0.73		-.3169		-.3211		-.3132		-.3180	
Nozzle 3	0.09		-.3243	-.3243	-.3307		-.3355		-.3274	-.3281
	0.30		-.3268	-.3218	-.3307		-.3386		-.3291	-.3293
	0.51		-.3268		-.3307		-.3338		-.3274	
	0.73		-.3256				-.3274			
Nozzle 6	0.09		-.3028				-.3116		-.3135	
	0.30		-.3099				-.3099		-.3206	
	0.51		-.3099				-.3028		-.3135	
	0.73								-.3099	
Shroud	0.13									.0866
	0.41									.1418
	0.62								-.3116	.1920
	0.81								-.3313	
	1.00								-.2921	.2241
Heat Shield		0.68								-.3099
		0.79								-.3135
		0.91								-.3116
		1.13	-.3170							
		1.25	-.3170							
		1.38	-.3152							
Star		0.00								
		0.12				-.2509				
		0.23				-.2759				-.2706

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^0$; $q_\infty = 645$; $p_j/p_\infty = 3.9$										
Nozzle 2	0.09		-.3237	-.3237	-.3214	-.3181	-.3404	-.3388	-.3325	-.3262
	0.30		-.3249	-.3249	-.3277	-.3039	-.3340	-.3373	-.3325	-.3249
	0.51		-.3237	-.2756	-.3277	-.3039	-.3262	-.3340	-.3310	-.3249
	0.73		-.3237		-.3246		-.3229		-.3039	
Nozzle 3	0.09		-.3262	-.3286	-.2721		-.3436		-.3277	-.3274
	0.30		-.3286	-.3274	-.3340		-.3404		-.3293	-.3299
	0.51		-.3262		-.3340		-.3356		-.3293	
	0.73		-.3262				-.3293			
Nozzle 6	0.09		-.3136				-.3243		-.3189	
	0.30		-.3172				-.3225		-.3260	
	0.51		-.3243				-.3136		-.3225	
	0.73								-.3243	
Shroud	0.13									.0842
	0.41									.1272
	0.62								-.3225	.1717
	0.81								-.3279	
	1.00								-.3064	.1968
Heat Shield		0.68								-.3260
		0.79								-.3296
		0.91								-.3296
		1.13	-.3279							
		1.25	-.3279							
		1.38	-.3279							
Star		0.00								
		0.12				-.2654				
		0.23				-.2850				-.2779

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = 0^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 4.4$										
Nozzle 2	0.09		-.2974	-.3075	-.3052	-.3003	-.3003	-.3100	-.3052	-.3042
	0.30		-.3058	-.3109	-.3114	-.3027	-.3076	-.3100	-.3076	-.2974
	0.51		-.2941	-.3093	-.3100	-.2904	-.3076	-.3114	-.3076	-.2991
	0.73		-.3058		-.3052		-.3003		-.3039	
Nozzle 3	0.09		-.3109	-.3075	-.3150		-.3162		-.3064	-.3109
	0.30		-.3109	-.3058	-.3162		-.3162		-.3138	-.3126
	0.51		-.3109		-.3150		-.3162		-.3126	
	0.73		-.3109				-.3162			
Nozzle 6	0.09		-.2732				-.2995		-.3013	
	0.30		-.2873				-.2925		-.3084	
	0.51		-.2784				-.2873		-.3084	
	0.73								-.2995	
Shroud	0.13									.0942
	0.41									.1680
	0.62								-.3154	.2384
	0.81								-.3541	
	1.00								-.2961	.2929
Heat Shield		0.68								-.2768
		0.79								-.2802
		0.91								-.2750
		1.13	-.2820							
		1.25	-.2820							
		1.38	-.2802							
Star		0.00	-.1555							
		0.12				-.2152				-.2134
		0.23				-.2504				-.2486

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 4.4$										
Nozzle 2	0.09		-.3046	-.3096	-.3116	-.3079	-.3079	-.3139	-.3116	-.3079
	0.30		-.3096	-.3145	-.3153	-.3079	-.3139	-.3139	-.3128	-.3062
	0.51		-.3096	-.3145	-.3139	-.2958	-.3116	-.3139	-.3104	-.3046
	0.73		-.3096		-.3104		-.3104		-.3104	
Nozzle 3	0.09		-.3196	-.3179	-.3237		-.3249		-.3139	-.3196
	0.30		-.3179	-.3145	-.3237		-.3237		-.3188	-.3196
	0.51		-.3196		-.3225		-.3261		-.3188	
	0.73		-.3196				-.3273			
Nozzle 6	0.09		-.2803				-.3013		-.3047	
	0.30		-.2926				-.2960		-.3135	
	0.51		-.2944				-.2960		-.3135	
	0.73								-.3031	
Shroud	0.13									.0638
	0.41									.1231
	0.62								-.3222	.1772
	0.81								-.3537	
	1.00								-.3065	.2349
Heat Shield		0.68								-.2944
		0.79								-.2978
		0.91								-.2960
		1.13	-.2978							
		1.25	-.2960							
		1.38	-.2960							
Star		0.00	-.1686							
		0.12				-.2297				-.2262
		0.23				-.2681				-.2629

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_\infty = 645$; $p_j/p_\infty = 4.6$										
Nozzle 2	0.09		-.3012	-.3048	-.3042	-.2991	-.3042	-.3054	-.3029	-.3012
	0.30		-.3029	-.3082	-.3042	-.2952	-.3054	-.3042	-.3029	-.3012
	0.51		-.3029	-.3048	-.3042	-.2813	-.3042	-.3042	-.3016	-.2995
	0.73		-.3012		-.3016		-.2991		-.3016	
Nozzle 3	0.09		-.3118	-.3082	-.3105		-.3143		-.3067	-.3118
	0.30		-.3118	-.3082	-.3105		-.3143		-.3079	-.3135
	0.51		-.3118		-.3093		-.3130		-.3079	
	0.73		-.3099				-.3093			
Nozzle 6	0.09		-.2822				-.2930		-.3022	
	0.30		-.2876				-.2913		-.3059	
	0.51		-.2876				-.2858		-.3005	
	0.73								-.2949	
Shroud	0.13									.0833
	0.41									.1399
	0.62								-.3096	.1893
	0.81								-.3333	
	1.00								-.2968	.2258
Heat Shield		0.68								-.2949
		0.79								-.2986
		0.91								-.2968
		1.13	-.2986							
		1.25	-.2968							
		1.38	-.2968							
Star		0.00	-.1505							
		0.12				-.2201				-.2109
		0.23				-.2583				-.2511

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 4.6$										
Nozzle 2	0.09		-.3038	-.3089	-.3077	-.3038	-.3191	-.3165	-.3128	-.3019
	0.30		-.3089	-.3108	-.3089	-.2911	-.3165	-.3165	-.3128	-.3089
	0.51		-.3089	-.3089	-.3102	-.2823	-.3128	-.3153	-.3114	-.3089
	0.73		-.3072		-.3089		-.3102		-.3114	
Nozzle 3	0.09		-.3142	-.3142	-.3165		-.3216		-.3128	-.3142
	0.30		-.3142	-.3142	-.3153		-.3216		-.3128	-.3142
	0.51		-.3142		-.3128		-.3177		-.3128	
	0.73		-.3142				-.3128			
Nozzle 6	0.09		-.2889				-.3072		-.3091	
	0.30		-.2964				-.3072		-.3128	
	0.51		-.2999				-.2981		-.3091	
	0.73								-.3072	
Shroud	0.13									.0826
	0.41									.1264
	0.62								-.3165	.1686
	0.81								-.3292	
	1.00								-.3072	.1960
Heat Shield		0.68								-.3109
		0.79								-.3128
		0.91								-.3128
		1.13	-.3128							
		1.25	-.3109							
		1.38	-.3109							
Star		0.00	-.1535							
		0.12				-.2304				-.2102
		0.23				-.2634				-.2561

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = 0^{0}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 4.8$										
Nozzle 2	0.09		-.2976	-.2988	-.2922	-.2889	-.2953	-.3033	-.3016	-.2951
	0.30		-.2976	-.3001	-.3033	-.2922	-.3001	-.3033	-.3016	-.2926
	0.51		-.2976	-.2618	-.3016	-.2793	-.2985	-.3033	-.2985	-.2889
	0.73		-.2976		-.2922		-.2922		-.2953	
Nozzle 3	0.09		-.3013	-.3001	-.3064		-.3097		-.2968	-.3001
	0.30		-.3013	-.2963	-.3064		-.3080		-.3033	-.3025
	0.51		-.3025		-.3049		-.3080		-.3033	
	0.73		-.3025				-.3112			
Nozzle 6	0.09		-.2594				-.2824		-.2931	
	0.30		-.2700				-.2824		-.2950	
	0.51		-.2646				-.2736		-.2985	
	0.73								-.2878	
Shroud	0.13									.0998
	0.41									.1708
	0.62								-.2950	.2456
	0.81								-.3305	
	1.00								-.2843	.2971
Heat Shield		0.68								-.2629
		0.79								-.2646
		0.91								-.2558
		1.13	-.2700							
		1.25	-.2682							
		1.38	-.2665							
Star		0.00								
		0.12				-.1865				
		0.23				-.2309				-.2273

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 4.8$										
Nozzle 2	0.09		-.2927	-.2951	-.2927	-.2911	-.2911	-.2975	-.2959	-.2914
	0.30		-.2939	-.2989	-.3007	-.2911	-.2944	-.2959	-.2927	-.2902
	0.51		-.2939	-.2581	-.2959	-.2767	-.2927	-.2927	-.2911	-.2852
	0.73		-.2927		-.2896		-.2911		-.2719	
Nozzle 3	0.09		-.3001	-.2976	-.2432		-.3071		-.2879	-.2976
	0.30		-.3001	-.2964	-.3055		-.3071		-.3023	-.3001
	0.51		-.3001		-.3040		-.3071		-.3023	
	0.73		-.3001				-.3119			
Nozzle 6	0.09		-.2652				-.2868		-.2941	
	0.30		-.2779				-.2815		-.2976	
	0.51		-.2761				-.2779		-.2958	
	0.73								-.2851	
Shroud	0.13									.0976
	0.41									.1585
	0.62								-.3031	.2215
	0.81								-.3389	
	1.00								-.2922	.2753
Heat Shield		0.68								-.2725
		0.79								-.2761
		0.91								-.2725
		1.13	-.2815							
		1.25	-.2815							
		1.38	-.2796							
Star		0.00								
		0.12				-.1988				
		0.23				-.2420				-.2365

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 4.8$										
Nozzle 2	0.09		-.2958	-.2995	-.2968	-.2920	-.2999	-.3016	-.2999	-.2933
	0.30		-.2982	-.3020	-.3016	-.2905	-.3016	-.2999	-.2953	-.2933
	0.51		-.2958	-.2626	-.3016	-.2761	-.2968	-.2984	-.2936	-.2897
	0.73		-.2958		-.2953		-.2920		-.2730	
Nozzle 3	0.09		-.3020	-.2995	-.2395		-.3080		-.2920	-.3020
	0.30		-.3020	-.2970	-.3032		-.3080		-.3032	-.3044
	0.51		-.3020		-.3032		-.3080		-.3032	
	0.73		-.3020				-.3047			
Nozzle 6	0.09		-.2677				-.2855		-.2962	
	0.30		-.2784				-.2838		-.2962	
	0.51		-.2784				-.2767		-.2945	
	0.73								-.2855	
Shroud	0.13									.0902
	0.41									.1418
	0.62								-.2945	.1952
	0.81								-.3247	
	1.00								-.2910	.2220
Heat Shield		0.68								-.2803
		0.79								-.2855
		0.91								-.2820
		1.13	-.2855							
		1.25	-.2855							
		1.38	-.2838							
Star		0.00								
		0.12				-.2037				
		0.23				-.2410				-.2322

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 4.8$										
Nozzle 2	0.09		-.3012	-.3037	-.3036	-.2988	-.3116	-.3116	-.3083	-.3012
	0.30		-.3025	-.3074	-.3083	-.2957	-.3131	-.3131	-.3068	-.3000
	0.51		-.3000	-.2630	-.3068	-.2782	-.3099	-.3131	-.3068	-.2975
	0.73		-.2975		-.3051		-.3068		-.2909	
Nozzle 3	0.09		-.3037	-.3049	-.2447		-.3179		-.3005	-.3074
	0.30		-.3062	-.3037	-.3099		-.3179		-.3099	-.3074
	0.51		-.3049		-.3099		-.3147		-.3083	
	0.73		-.3049				-.3099			
Nozzle 6	0.09		-.2785				-.2944		-.2998	
	0.30		-.2837				-.2963		-.3034	
	0.51		-.2892				-.2892		-.2998	
	0.73								-.2944	
Shroud	0.13									.0867
	0.41									.1311
	0.62								-.2998	.1740
	0.81								-.3193	
	1.00								-.2998	.1989
Heat Shield		0.68								-.2998
		0.79								-.3015
		0.91								-.3015
		1.13	-.3015							
		1.25	-.2998							
		1.38	-.2998							
Star		0.00								
		0.12				-.2073				
		0.23				-.2429				-.2358

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 6.6$										
Nozzle 2	0.09		-.2558	-.2558	-.2586	-.2426	-.2667	-.2667	-.2651	-.2546
	0.30		-.2558	-.2583	-.2651	-.2570	-.2684	-.2667	-.2651	-.2533
	0.51		-.2546	-.2235	-.2651	-.2426	-.2651	-.2684	-.2636	-.2570
	0.73		-.2558		-.2586		-.2490		-.2586	
Nozzle 3	0.09		-.2620	-.2595	-.2684		-.2732		-.2603	-.2595
	0.30		-.2595	-.2546	-.2684		-.2715		-.2651	-.2558
	0.51		-.2558		-.2667		-.2667		-.2651	
	0.73		-.2583				-.2684			
Nozzle 6	0.09		-.2030				-.2244		-.2601	
	0.30		-.2209				-.2299		-.2511	
	0.51		-.2156				-.2209		-.2547	
	0.73								-.2404	
Shroud	0.13									.1073
	0.41									.1769
	0.62								-.2547	.2501
	0.81								-.2904	
	1.00								-.2780	.3072
Heat Shield		0.68								-.2049
		0.79								-.2120
		0.91								-.1994
		1.13	-.2227							
		1.25	-.2209							
		1.38	-.2191							
Star		0.00								
		0.12				-.1014				
		0.23				-.1656				-.1584

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 6.6$										
Nozzle 2	0.09		-.2582	-.2595	-.2616	-.2457	-.2616	-.2649	-.2649	-.2570
	0.30		-.2570	-.2607	-.2666	-.2585	-.2616	-.2633	-.2633	-.2545
	0.51		-.2570	-.2247	-.2649	-.2472	-.2616	-.2633	-.2616	-.2508
	0.73		-.2582		-.2585		-.2553		-.2311	
Nozzle 3	0.09		-.2632	-.2632	-.2005		-.2730		-.2537	-.2607
	0.30		-.2607	-.2607	-.2666		-.2682		-.2649	-.2607
	0.51		-.2607		-.2666		-.2666		-.2633	
	0.73		-.2607				-.2697			
Nozzle 6	0.09		-.2076				-.2401		-.2615	
	0.30		-.2311				-.2346		-.2579	
	0.51		-.2273				-.2346		-.2579	
	0.73								-.2453	
Shroud	0.13									.1032
	0.41									.1643
	0.62								-.2742	.2326
	0.81								-.3155	
	1.00								-.2885	.2848
Heat Shield		0.68								-.2256
		0.79								-.2273
		0.91								-.2221
		1.13	-.2363							
		1.25	-.2328							
		1.38	-.2328							
Star		0.00								
		0.12				-.1196				
		0.23				-.1789				-.1699

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 645$; $p_j/p_\infty = 6.6$										
Nozzle 2	0.09		-.2594	-.2606	-.2625	-.2481	-.2640	-.2657	-.2640	-.2581
	0.30		-.2581	-.2631	-.2657	-.2577	-.2625	-.2625	-.2625	-.2557
	0.51		-.2594	-.2283	-.2640	-.2448	-.2577	-.2592	-.2577	-.2507
	0.73		-.2594		-.2625		-.2577		-.2529	
Nozzle 3	0.09		-.2619	-.2631	-.2689		-.2721		-.2609	-.2619
	0.30		-.2631	-.2606	-.2657		-.2706		-.2640	-.2631
	0.51		-.2619		-.2640		-.2689		-.2625	
	0.73		-.2619				-.2721			
Nozzle 6	0.09		-.2055				-.2322		-.2589	
	0.30		-.2286				-.2305		-.2519	
	0.51		-.2269				-.2269		-.2501	
	0.73								-.2377	
Shroud	0.13									.0953
	0.41									.1504
	0.62								-.2644	.2002
	0.81								-.2999	
	1.00								-.2820	.2341
Heat Shield		0.68								-.2251
		0.79								-.2286
		0.91								-.2217
		1.13	-.2322							
		1.25	-.2305							
		1.38	-.2286							
Star		0.00								
		0.12				-.1113				
		0.23				-.1683				-.1557

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 6.6$										
Nozzle 2	0.09		-.2680	-.2692	-.2835	-.2739	-.2885	-.2885	-.2852	-.2668
	0.30		-.2692	-.2730	-.2868	-.2820	-.2868	-.2868	-.2835	-.2655
	0.51		-.2692	-.2357	-.2852	-.2643	-.2852	-.2868	-.2804	-.2606
	0.73		-.2692		-.2835		-.2900		-.2691	
Nozzle 3	0.09		-.2705	-.2717	-.2243		-.2900			-.2705
	0.30		-.2692	-.2705	.1337		-.2852		-.2916	-.2767
	0.51		-.2705		-.2852		-.2868		-.2916	
	0.73		-.2705				-.2852			
Nozzle 6	0.09		-.2246				-.2407		-.2784	
	0.30		-.2478				-.2497		-.2730	
	0.51		-.2497				-.2407		-.2711	
	0.73								-.2604	
Shroud	0.13									.0892
	0.41								.1968	.1304
	0.62								-.2765	
	0.81								-.3124	.1753
	1.00									-.2568
Heat Shield		0.68								-.2568
		0.79								-.2514
		0.91	-.2568							
		1.13	-.2568							
		1.25	-.2550							
		1.38								
Star		0.00				-.1205				
		0.12				-.1779				-.1689
		0.23								

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = 0^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2282	-.2296	-.2228	-.2171	-.2228	-.2246	-.2246	-.2296
	0.30		-.2296	-.2296	-.2266	-.2171	-.2246	-.2246	-.2246	-.2296
	0.51		-.2296	-.2210	-.2266	-.2228	-.2266	-.2246	-.2246	-.2282
	0.73		-.2282		-.2266		-.2266		-.2097	
Nozzle 3	0.09		-.2296	-.2296	-.2246		-.2266		-.2246	-.2296
	0.30		-.2296	-.2296	-.2246		-.2246		-.2266	-.2296
	0.51		-.2296		-.2266		-.2266		-.2266	
	0.73		-.2296				-.2246			
Nozzle 6	0.09		-.2354				-.2354		-.2334	
	0.30		-.2354				-.2354		-.2354	
	0.51		-.2354				-.2354		-.2354	
	0.73								-.2354	
Shroud	0.13									.1126
	0.41									.1525
	0.62								-.2376	.1882
	0.81								-.2354	
	1.00								-.1914	.1902
Heat Shield		0.68								-.2334
		0.79								-.2354
		0.91								-.2354
		1.13	-.2354							
		1.25	-.2354							
		1.38	-.2354							
Star		0.00								
		0.12				-.1748				
		0.23				-.1789				-.1663

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2282	-.2296	-.2173	-.2173	-.2211	-.2229	-.2248	-.2296
	0.30		-.2296	-.2296	-.2248	-.2173	-.2229	-.2229	-.2229	-.2296
	0.51		-.2296	-.2210	-.2248	-.2173	-.2229	-.2229	-.2229	-.2282
	0.73		-.2282		-.2229		-.2229		-.2211	
Nozzle 3	0.09		-.2296	-.2296	-.2229		-.2229		-.2229	-.2296
	0.30		-.2296	-.2296	-.2248		-.2248		-.2248	-.2296
	0.51		-.2296		-.2248		-.2248		-.2248	
	0.73		-.2296				-.2248			
Nozzle 6	0.09		-.2374				-.2374		-.2333	
	0.30		-.2353				-.2353		-.2353	
	0.51		-.2353				-.2353		-.2353	
	0.73								-.2353	
Shroud	0.13									.1134
	0.41									.1471
	0.62								-.2333	.1849
	0.81								-.2289	
	1.00								-.1912	.1849
Heat Shield		0.68								-.2353
		0.79								-.2353
		0.91								-.2353
		1.13	-.2353							
		1.25	-.2353							
		1.38	-.2353							
Star		0.00								
		0.12				-.1891				
		0.23				-.1912				-.1764

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -4^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2276	-.2290	-.2188	-.2188	-.2206	-.2225	-.2225	-.2290
	0.30		-.2290	-.2290	-.2243	-.2168	-.2206	-.2206	-.2206	-.2290
	0.51		-.2290	-.2188	-.2225	-.2188	-.2225	-.2206	-.2206	-.2276
	0.73		-.2276		-.2225		-.2225		-.2206	
Nozzle 3	0.09		-.2290	-.2290	-.2243		-.2225		-.2225	-.2290
	0.30		-.2290	-.2290	-.2225		-.2243		-.2243	-.2290
	0.51		-.2290		-.2243		-.2243		-.2225	
	0.73		-.2290				-.2225			
Nozzle 6	0.09		-.2348				-.2328		-.2306	
	0.30		-.2306				-.2328		-.2328	
	0.51		-.2306				-.2306		-.2328	
	0.73								-.2328	
Shroud	0.13									.0898
	0.41									.1172
	0.62								-.2328	.1489
	0.81								-.2328	
	1.00								-.1968	.1403
Heat Shield		0.68								-.2328
		0.79								-.2328
		0.91								-.2328
		1.13	-.2328							
		1.25	-.2328							
		1.38	-.2328							
Star		0.00								
		0.12				-.1990				
		0.23				-.2032				-.1843

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2413	-.2442	-.2360	-.2304	-.2398	-.2417	-.2417	-.2442
	0.30		-.2442	-.2456	-.2398	-.2324	-.2398	-.2398	-.2398	-.2442
	0.51		-.2442	-.2326	-.2417	-.2342	-.2398	-.2398	-.2398	-.2413
	0.73		-.2413		-.2398		-.2398		-.2398	
Nozzle 3	0.09		-.2442	-.2442	-.2417		-.2398		-.2417	-.2442
	0.30		-.2442	-.2442	-.2417		-.2417		-.2417	-.2442
	0.51		-.2442		-.2417		-.2417		-.2417	
	0.73		-.2442				-.2417			
Nozzle 6	0.09		-.2518				-.2518		-.2498	
	0.30		-.2518				-.2518		-.2518	
	0.51		-.2518				-.2518		-.2518	
	0.73								-.2518	
Shroud	0.13									.0684
	0.41									.1043
	0.62								-.2435	.1336
	0.81								-.2455	
	1.00								-.2223	.1379
Heat Shield		0.68								-.2498
		0.79								-.2518
		0.91								-.2518
		1.13	-.2518							
		1.25	-.2518							
		1.38	-.2518							
Star		0.00								
		0.12				-.2181				
		0.23				-.2203				-.2033

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 5.1$										
Nozzle 2	0.09		-.2184	-.2224	-.2190	-.2115	-.2130	-.2204	-.2175	-.2184
	0.30		-.2204	-.2244	-.2219	-.2159	-.2175	-.2204	-.2204	-.2184
	0.51		-.2224	-.2244	-.2219	-.2115	-.2204	-.2219	-.2204	-.2184
	0.73		-.2224		-.2204		-.2175		-.2190	
Nozzle 3	0.09		-.2224	-.2204	-.2190		-.2175		-.2175	-.2224
	0.30		-.2224	-.2204	-.2204		-.2219		-.2204	-.2224
	0.51		-.2224		-.2219		-.2233		-.2204	
	0.73		-.2224				-.2219			
Nozzle 6	0.09		-.1939				-.2086		-.2086	
	0.30		-.2003				-.2086		-.2150	
	0.51		-.1959				-.2044		-.2150	
	0.73								-.2130	
Shroud	0.13									.1285
	0.41									.1667
	0.62								-.1981	.2006
	0.81								-.2172	
	1.00								-.1768	.2048
Heat Shield		0.68								-.1959
		0.79								-.1959
		0.91								-.1832
		1.13	-.2066							
		1.25	-.2044							
		1.38	-.1981							
Star		0.00	-.0752							
		0.12				-.1387				-.1387
		0.23				-.1727				-.1663

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 5.1$										
Nozzle 2	0.09		-.2160	-.2200	-.2189	-.2144	-.2144	-.2175	-.2144	-.2200
	0.30		-.2200	-.2222	-.2189	-.2158	-.2144	-.2175	-.2175	-.2200
	0.51		-.2200	-.2222	-.2204	-.2100	-.2158	-.2175	-.2158	-.2200
	0.73		-.2200		-.2189		-.2144		-.2144	
Nozzle 3	0.09		-.2222	-.2222	-.2218		-.2189		-.2189	-.2242
	0.30		-.2242	-.2222	-.2233		-.2233		-.2204	-.2242
	0.51		-.2242		-.2218		-.2233		-.2218	
	0.73		-.2242				-.2249			
Nozzle 6	0.09		-.2057				-.2164		-.2186	
	0.30		-.2100				-.2186		-.2227	
	0.51		-.2079				-.2164		-.2249	
	0.73								-.2227	
Shroud	0.13									.1141
	0.41									.1418
	0.62								-.2186	.1781
	0.81								-.2249	
	1.00								-.1886	.1866
Heat Shield		0.68								-.2122
		0.79								-.2164
		0.91								-.2142
		1.13	-.2207							
		1.25	-.2186							
		1.38	-.2164							
Star		0.00	-.0885							
		0.12				-.1545				-.1545
		0.23				-.1845				-.1845

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 5.1$										
Nozzle 2	0.09		-.2181	-.2243	-.2203	-.2159	-.2174	-.2188	-.2174	-.2223
	0.30		-.2223	-.2243	-.2217	-.2159	-.2188	-.2188	-.2188	-.2223
	0.51		-.2223	-.2243	-.2234	-.2114	-.2188	-.2203	-.2188	-.2223
	0.73		-.2223		-.2203		-.2143		-.2159	
Nozzle 3	0.09		-.2263	-.2243	-.2203		-.2203		-.2203	-.2263
	0.30		-.2263	-.2263	-.2217		-.2203		-.2234	-.2284
	0.51		-.2263		-.2234		-.2234		-.2248	
	0.73		-.2263				-.2248			
Nozzle 6	0.09		-.2034				-.2185		-.2204	
	0.30		-.2141				-.2185		-.2248	
	0.51		-.2141				-.2163		-.2248	
	0.73								-.2248	
Shroud	0.13									.0868
	0.41									.1189
	0.62								-.2185	.1425
	0.81								-.2290	
	1.00								-.1949	.1403
Heat Shield		0.68								-.2141
		0.79								-.2204
		0.91								-.2163
		1.13	-.2204							
		1.25	-.2204							
		1.38	-.2204							
Star		0.00	-.0881							
		0.12				-.1608				-.1523
		0.23				-.1885				-.1820

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = -8°$; $q_\infty = 552$; $p_j/p_\infty = 5.1$							
Nozzle 2	0.09		-.2226	-.2246	.2219	-.2204	-.2293	-.2293	-.2249	-.2246
	0.30		-.2246	-.2246	-.2219	-.2130	-.2278	-.2293	-.2249	-.2246
	0.51		-.2246	-.2246	-.2235	-.2086	-.2235	-.2264	-.2249	-.2246
	0.73		-.2246		-.2219		-.2204		-.2235	
Nozzle 3	0.09		-.2287	-.2287	-.2264		-.2264		-.2264	-.2287
	0.30		-.2287	-.2287	-.2264		-.2264		-.2293	-.2307
	0.51		-.2307		-.2278		-.2278		-.2278	
	0.73		-.2307				-.2278			
Nozzle 6	0.09		-.2144				-.2166		-.2251	
	0.30		-.2210				-.2210		-.2273	
	0.51		-.2229				-.2210		-.2229	
	0.73								-.2229	
Shroud	0.13									.0730
	0.41									.1070
	0.62								-.2210	.1304
	0.81								-.2358	
	1.00								-.2188	.1411
Heat Shield		0.68								-.2229
		0.79								-.2229
		0.91								-.2251
		1.13	-.2273							
		1.25	-.2273							
		1.38	-.2273							
Star		0.00	-.0846							
		0.12				-.1634				-.1463
		0.23				-.1867				-.1826

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = 0^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.2027	-.2067	-.2076	-.1944	-.2033	-.2062	-.2047	-.2027
	0.30		-.2047	-.2067	-.2076	-.2017	-.2062	-.2076	-.2062	-.2027
	0.51		-.2047	-.2067	-.2091	-.1988	-.2062	-.2076	-.2062	-.1986
	0.73		-.2047		-.2076		-.1988		-.2047	
Nozzle 3	0.09		-.2047	-.2027	-.2062		-.2062		-.2076	-.2067
	0.30		-.2047	-.2027	-.2062		-.2076		-.2076	-.2067
	0.51		-.2047		-.2076		-.2091		-.2091	
	0.73		-.2047				-.2076			
Nozzle 6	0.09		-.1741				-.1951		-.1971	
	0.30		-.1825				-.1930		-.1971	
	0.51		-.1783				-.1866		-.1993	
	0.73								-.1971	
Shroud	0.13									.1289
	0.41									.1647
	0.62								-.1866	.2006
	0.81								-.2098	
	1.00								-.1741	.2047
Heat Shield		0.68								-.1761
		0.79								-.1761
		0.91								-.1678
		1.13	-.1888							
		1.25	-.1846							
		1.38	-.1825							
Star		0.00	-.0163							
		0.12				-.1025				-.1005
		0.23				-.1466				-.1446

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.2047	-.2089	-.2062	-.1973	-.2017	-.2047	-.2017	-.2047
	0.30		-.2067	-.2109	-.2062	-.2033	-.2047	-.2047	-.2047	-.2047
	0.51		-.2067	-.2109	-.2076	-.1973	-.2047	-.2047	-.2047	-.2047
	0.73		-.2067		-.2091		-.1959		-.2017	
Nozzle 3	0.09		-.2089	-.2089	-.2062		-.2047		-.2062	-.2109
	0.30		-.2089	-.2089	-.2076		-.2062		-.2062	-.2109
	0.51		-.2109		-.2076		-.2076		-.2062	
	0.73		-.2109				-.2076			
Nozzle 6	0.09		-.1890				-.2018		-.2103	
	0.30		-.1953				-.2018		-.2103	
	0.51		-.1953				-.1997		-.2103	
	0.73								-.2082	
Shroud	0.13									.1153
	0.41									.1493
	0.62								-.2018	.1814
	0.81								-.2208	
	1.00								-.1868	.1877
Heat Shield		0.68								-.1933
		0.79								-.1975
		0.91								-.1868
		1.13	-.2082							
		1.25	-.2038							
		1.38	-.2018							
Star		0.00	-.0293							
		0.12				-.1187				-.1166
		0.23				-.1635				-.1613

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.2085	-.2127	-.2051	-.1976	-.2020	-.2051	-.2020	-.2085
	0.30		-.2105	-.2146	-.2051	-.2020	-.2036	-.2036	-.2036	-.2085
	0.51		-.2105	-.2146	-.2065	-.1962	-.2020	-.2036	-.2036	-.2085
	0.73		-.2105		-.2065		-.1976		-.2020	
Nozzle 3	0.09		-.2127	-.2127	-.2051		-.2051		-.2051	-.2146
	0.30		-.2146	-.2127	-.2051		-.2065		-.2065	-.2166
	0.51		-.2166		-.2065		-.2065		-.2080	
	0.73		-.2146				-.2080			
Nozzle 6	0.09		-.1895				-.2065		-.2085	
	0.30		-.1937				-.2043		-.2085	
	0.51		-.1958				-.2000		-.2085	
	0.73								-.2065	
Shroud	0.13									.0886
	0.41									.1183
	0.62								-.2022	.1394
	0.81								-.2235	
	1.00								-.1937	.1374
Heat Shield		0.68								-.1980
		0.79								-.2043
		0.91								-.1958
		1.13	-.2065							
		1.25	-.2065							
		1.38	-.2065							
Star		0.00	-.0324							
		0.12				-.1215				-.1174
		0.23				-.1682				-.1618

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.2124	-.2144	-.2104	-.2045	-.2133	-.2133	-.2104	-.2144
	0.30		-.2144	-.2164	-.2088	-.2059	-.2133	-.2133	-.2119	-.2144
	0.51		-.2144	-.2164	-.2119	-.1970	-.2104	-.2119	-.2104	-.2144
	0.73		-.2144		-.2104		-.2059		-.2088	
Nozzle 3	0.09		-.2184	-.2184	-.2119		-.2133		-.2133	-.2206
	0.30		-.2206	-.2184	-.2133		-.2133		-.2133	-.2206
	0.51		-.2206		-.2133		-.2133		-.2148	
	0.73		-.2206				-.2119			
Nozzle 6	0.09		-.1974				-.2059		-.2166	
	0.30		-.2059				-.2081		-.2124	
	0.51		-.2059				-.2037		-.2166	
	0.73								-.2103	
Shroud	0.13									.0708
	0.41									.1049
	0.62								-.2103	.1326
	0.81								-.2295	
	1.00								-.2188	.1433
Heat Shield		0.68								-.2103
		0.79								-.2124
		0.91								-.2124
		1.13	-.2144							
		1.25	-.2144							
		1.38	-.2124							
Star		0.00	-.0292							
		0.12				-.1250				-.1123
		0.23				-.1655				-.1612

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 554$; $p_j/p_{\infty} = 7.1$										
Nozzle 2	0.09		-.1982	-.2026	-.1975	-.1883	-.2031	-.1975	-.1975	-.1982
	0.30		-.2011	-.2040	-.2013	-.1939	-.2013	-.2013	-.1975	-.1968
	0.51		-.2011	-.1982	-.1993	-.1883	-.1957	-.1993	-.1957	-.1953
	0.73		-.2011		-.1975		-.1883		-.1939	
Nozzle 3	0.09		-.2026	-.2011	-.1975		-.1993		-.2013	-.2040
	0.30		-.2040	-.2011	-.1993		-.1993		-.1993	-.2054
	0.51		-.2054		-.1975		-.1993		-.1975	
	0.73		-.2040				-.1993			
Nozzle 6	0.09		-.1701				-.1825		-.1991	
	0.30		-.1762				-.1867		-.1930	
	0.51		-.1742				-.1784		-.1950	
	0.73								-.1908	
Shroud	0.13									.1250
	0.41									.1667
	0.62								-.1847	.2062
	0.81								-.2033	
	1.00								-.1742	.2062
Heat Shield		0.68								-.1721
		0.79								-.1742
		0.91								-.1596
		1.13	-.1825							
		1.25	-.1825							
		1.38	-.1784							
Star		0.00								
		0.12				-.0745				
		0.23				-.1306				-.1243

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 554$; $p_j/p_\infty = 7.1$										
Nozzle 2	0.09		-.1986	-.2015	-.1991	-.1880	-.1953	-.1953	-.1973	-.1972
	0.30		-.2000	-.2015	-.1991	-.1953	-.1953	-.1953	-.1973	-.1972
	0.51		-.2000	-.1957	-.1991	-.1880	-.1953	-.1953	-.1953	-.1943
	0.73		-.2000		-.1991		-.1880		-.1935	
Nozzle 3	0.09		-.2015	-.2000	-.1991		-.1973		-.2029	-.2044
	0.30		-.2029	-.2000	-.2009		-.2009		-.1991	-.2044
	0.51		-.2029		-.1991		-.2009		-.2009	
	0.73		-.2029				-.2009			
Nozzle 6	0.09		-.1789				-.1916		-.2042	
	0.30		-.1852				-.1916		-.2000	
	0.51		-.1833				-.1916		-.2020	
	0.73								-.1979	
Shroud	0.13									.1185
	0.41									.1542
	0.62								-.1916	.1898
	0.81								-.2168	
	1.00								-.1833	.1919
Heat Shield		0.68								-.1833
		0.79								-.1852
		0.91								-.1769
		1.13	-.1937							
		1.25	-.1937							
		1.38	-.1916							
Star		0.00								
		0.12				-.0889				
		0.23				-.1412				-.1371

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 554$; $p_j/p_\infty = 7.1$										
Nozzle 2	0.09		-.2010	-.2025	-.1991	-.1899	-.1991	-.2010	-.1972	-.1996
	0.30		-.1996	-.2054	-.2028	-.1954	-.1972	-.1991	-.1972	-.1996
	0.51		-.2010	-.1967	-.2046	-.1917	-.1972	-.1972	-.1972	-.1982
	0.73		-.2010		-.2028		-.1935		-.1954	
Nozzle 3	0.09		-.2025	-.2010	-.2028		-.2046		-.2028	-.2054
	0.30		-.2054	-.2010	-.2028		-.2028		-.2046	-.2054
	0.51		-.2054		-.2028		-.2028		-.2028	
	0.73		-.2054				-.2028			
Nozzle 6	0.09		-.1769				-.1873		-.2019	
	0.30		-.1852				-.1873		-.1978	
	0.51		-.1852				-.1873		-.2000	
	0.73								-.1978	
Shroud	0.13									.0935
	0.41									.1229
	0.62								-.1915	.1523
	0.81								-.2083	
	1.00								-.1895	.1460
Heat Shield		0.68								-.1852
		0.79								-.1873
		0.91								-.1769
		1.13	-.1936							
		1.25	-.1936							
		1.38	-.1915							
Star		0.00								
		0.12				-.0910				
		0.23				-.1391				-.1328

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -8^{0}$; $q_{\infty} = 554$; $p_j/p_{\infty} = 7.0$										
Nozzle 2	0.09		-.2056	-.2070	-.2048	-.1956	-.2068	-.2068	-.2048	-.2056
	0.30		-.2056	-.2070	-.2068	-.2048	-.2068	-.2068	-.2048	-.2056
	0.51		-.2056	-.2012	-.2068	-.1956	-.2048	-.2048	-.2048	-.2027
	0.73		-.2056		-.2048		-.2012		-.2030	
Nozzle 3	0.09		-.2070	-.2070	-.2048		-.2086		-.2068	-.2099
	0.30		-.2084	-.2070	-.2068		-.2068		-.2068	-.2099
	0.51		-.2099		-.2048		-.2068		-.2086	
	0.73		-.2099				-.2068			
Nozzle 6	0.09		-.1834				-.1938		-.2128	
	0.30		-.1982				-.1982		-.2086	
	0.51		-.1960				-.1938		-.2106	
	0.73								-.2065	
Shroud	0.13									.0740
	0.41									.1054
	0.62								-.2043	.1368
	0.81								-.2191	
	1.00								-.2169	.1409
Heat Shield		0.68								-.1982
		0.79								-.2023
		0.91								-.1982
		1.13	-.2043							
		1.25	-.2043							
		1.38	-.2043							
Star		0.00								
		0.12				-.0976				
		0.23				-.1478				-.1417

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 559$; $p_j/p_{\infty} = 8.3$										
Nozzle 2	0.09		-.1827	-.1847	-.1847	-.1700	-.1861	-.1861	-.1832	-.1807
	0.30		-.1847	-.1847	-.1861	-.1759	-.1861	-.1861	-.1847	-.1807
	0.51		-.1827	-.1866	-.1847	-.1716	-.1832	-.1861	-.1832	-.1766
	0.73		-.1847		-.1832		-.1759		-.1832	
Nozzle 3	0.09		-.1847	-.1827	-.1847		-.1920		-.1906	-.1866
	0.30		-.1866	-.1827	-.1891		-.1920		-.1906	-.1886
	0.51		-.1866		-.1906		-.1906		-.1847	
	0.73		-.1866				-.1861			
Nozzle 6	0.09		-.1544				-.1711		-.1898	
	0.30		-.1691				-.1732		-.1857	
	0.51		-.1669				-.1711		-.1879	
	0.73								-.1816	
Shroud	0.13									.1152
	0.41									.1508
	0.62								-.1857	.1884
	0.81								-.2088	
	1.00								-.1857	.1927
Heat Shield		0.68								-.1626
		0.79								-.1648
		0.91								-.1544
		1.13	-.1773							
		1.25	-.1754							
		1.38	-.1754							
Star		0.00	.0651							
		0.12				-.0456				-.0519
		0.23				-.1147				-.1125

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 8.4$										
Nozzle 2	0.09		-.1845	-.1884	-.1826	-.1678	-.1826	-.1841	-.1812	-.1864
	0.30		-.1884	-.1884	-.1855	-.1767	-.1826	-.1826	-.1826	-.1864
	0.51		-.1884	-.1884	-.1841	-.1709	-.1797	-.1826	-.1812	-.1823
	0.73		-.1884		-.1826		-.1723		-.1812	
Nozzle 3	0.09		-.1904	-.1864	-.1826		-.1855		-.1841	-.1904
	0.30		-.1904	-.1884	-.1841		-.1841		-.1841	-.1904
	0.51		-.1904		-.1841		-.1841		-.1826	
	0.73		-.1904				-.1812			
Nozzle 6	0.09		-.1577				-.1747		-.1917	
	0.30		-.1683				-.1705		-.1854	
	0.51		-.1683				-.1705		-.1895	
	0.73								-.1832	
Shroud	0.13									.1160
	0.41									.1499
	0.62								-.1810	.1817
	0.81								-.2065	
	1.00								-.1854	.1881
Heat Shield		0.68								-.1662
		0.79								-.1683
		0.91								-.1598
		1.13	-.1769							
		1.25	-.1769							
		1.38	-.1769							
Star		0.00	.0715							
		0.12				-.0411				-.0559
		0.23				-.1175				-.1153

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -4^{0}$; $q_{\infty} = 553$; $p_j/p_{\infty} = 8.4$										
Nozzle 2	0.09		-.1865	-.1905	-.1827	-.1710	-.1813	-.1827	-.1813	-.1844
	0.30		-.1885	-.1885	-.1842	-.1753	-.1827	-.1827	-.1827	-.1844
	0.51		-.1885	-.1885	-.1827	-.1710	-.1798	-.1827	-.1813	-.1824
	0.73		-.1865		-.1827		-.1724		-.1813	
Nozzle 3	0.09		-.1885	-.1885	-.1842		-.1901		-.1842	-.1905
	0.30		-.1905	-.1885	-.1827		-.1842		-.1856	-.1905
	0.51		-.1905		-.1842		-.1827		-.1842	
	0.73		-.1905				-.1784			
Nozzle 6	0.09		-.1619				-.1746		-.1916	
	0.30		-.1704				-.1726		-.1853	
	0.51		-.1704				-.1704		-.1896	
	0.73								-.1831	
Shroud	0.13									.0906
	0.41									.1224
	0.62								-.1853	.1478
	0.81								-.2022	
	1.00								-.1916	.1457
Heat Shield		0.68								-.1683
		0.79								-.1726
		0.91								-.1641
		1.13	-.1811							
		1.25	-.1789							
		1.38	-.1789							
Star		0.00	.0714							
		0.12				-.0474				-.0517
		0.23				-.1173				-.1153

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 560$; $p_j/p_\infty = 8.3$										
Nozzle 2	0.09		-.1887	-.1906	-.1894	-.1790	-.1937	-.1937	-.1849	-.1887
	0.30		-.1906	-.1926	-.1878	-.1835	-.1894	-.1922	-.1878	-.1887
	0.51		-.1906	-.1906	-.1894	-.1790	-.1835	-.1894	-.1878	-.1887
	0.73		-.1887		-.1894		-.1806		-.1849	
Nozzle 3	0.09		-.1926	-.1926	-.1878		-.1951		-.1922	-.1926
	0.30		-.1926	-.1926	-.1894		-.1922		-.1922	-.1945
	0.51		-.1945		-.1894		-.1894		-.1894	
	0.73		-.1926				-.1863			
Nozzle 6	0.09		-.1705				-.1808		-.1997	
	0.30		-.1829				-.1829		-.1956	
	0.51		-.1851				-.1829		-.1935	
	0.73								-.1913	
Shroud	0.13									.0710
	0.41									.1087
	0.62								-.1976	.1319
	0.81								-.2186	
	1.00								-.2144	.1444
Heat Shield		0.68								-.1829
		0.79								-.1892
		0.91								-.1851
		1.13	-.1913							
		1.25	-.1913							
		1.38	-.1892							
Star		0.00	.0626							
		0.12				-.0612				-.0634
		0.23				-.1283				-.1242

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 8.8$										
Nozzle 2	0.09		-.1804	-.1818	-.1802	-.1672	-.1838	-.1802	-.1802	-.1775
	0.30		-.1804	-.1818	-.1802	-.1726	-.1802	-.1820	-.1782	-.1775
	0.51		-.1804	-.1789	-.1782	-.1672	-.1764	-.1802	-.1782	-.1746
	0.73		-.1804		-.1782		-.1690		-.1764	
Nozzle 3	0.09		-.1833	-.1804	-.1782		-.1838		-.1802	-.1847
	0.30		-.1847	-.1804	-.1802		-.1838		-.1802	-.1862
	0.51		-.1847		-.1802		-.1802		-.1782	
	0.73		-.1847				-.1802			
Nozzle 6	0.09		-.1422				-.1527		-.1798	
	0.30		-.1527				-.1588		-.1777	
	0.51		-.1505				-.1547		-.1755	
	0.73								-.1693	
Shroud	0.13									.1250
	0.41									.1646
	0.62								-.1713	.2063
	0.81								-.1860	
	1.00								-.1755	.2063
Heat Shield		0.68								-.1485
		0.79								-.1505
		0.91								-.1380
		1.13	-.1630							
		1.25	-.1610							
		1.38	-.1568							
Star		0.00								
		0.12				-.0190				
		0.23				-.0963				-.0900

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 557$; $p_j/p_{\infty} = 8.8$										
Nozzle 2	0.09		-.1816	-.1831	-.1813	-.1665	-.1795	-.1795	-.1795	-.1802
	0.30		-.1816	-.1845	-.1813	-.1719	-.1775	-.1795	-.1775	-.1788
	0.51		-.1816	-.1788	-.1795	-.1683	-.1739	-.1775	-.1775	-.1771
	0.73		-.1816		-.1795		-.1683		-.1739	
Nozzle 3	0.09		-.1845	-.1816	-.1795		-.1813		-.1795	-.1859
	0.30		-.1845	-.1816	-.1795		-.1795		-.1813	-.1859
	0.51		-.1859		-.1795		-.1775		-.1795	
	0.73		-.1845				-.1757			
Nozzle 6	0.09		-.1450				-.1615		-.1845	
	0.30		-.1574				-.1595		-.1782	
	0.51		-.1574				-.1595		-.1782	
	0.73								-.1699	
Shroud	0.13									.1317
	0.41									.1651
	0.62								-.1699	.2046
	0.81								-.1908	
	1.00								-.1741	.2046
Heat Shield		0.68								-.1554
		0.79								-.1574
		0.91								-.1470
		1.13	-.1678							
		1.25	-.1658							
		1.38	-.1637							
Star		0.00								
		0.12				-.0243				
		0.23				-.1013				-.0992

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 575$; $p_j/p_{\infty} = 8.5$										
Nozzle 2	0.09		-.1873	-.1887	-.1868	-.1760	-.1850	-.1885	-.1868	-.1845
	0.30		-.1887	-.1915	-.1868	-.1796	-.1850	-.1885	-.1868	-.1873
	0.51		-.1887	-.1873	-.1885	-.1760	-.1831	-.1885	-.1868	-.1845
	0.73		-.1901		-.1885		-.1777		-.1850	
Nozzle 3	0.09		-.1915	-.1901	-.1885		-.1921		-.1904	-.1928
	0.30		-.1928	-.1915	-.1885		-.1885		-.1885	-.1942
	0.51		-.1942		-.1885		-.1885		-.1885	
	0.73		-.1942				-.1850			
Nozzle 6	0.09		-.1549				-.1648		-.1848	
	0.30		-.1608				-.1608		-.1789	
	0.51		-.1608				-.1608		-.1789	
	0.73								-.1749	
Shroud	0.13									.0834
	0.41									.1114
	0.62								-.1749	.1375
	0.81								-.1888	
	1.00								-.1869	.1335
Heat Shield		0.68								-.1608
		0.79								-.1648
		0.91								-.1568
		1.13	-.1749							
		1.25	-.1728							
		1.38	-.1709							
Star		0.00								
		0.12				-.0348				
		0.23				-.1088				-.1048

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 555$; $p_j/p_{\infty} = 8.7$										
Nozzle 2	0.09		-.1856	-.1870	-.1863	-.1789	-.1919	-.1919	-.1881	-.1856
	0.30		-.1870	-.1885	-.1881	-.1827	-.1881	-.1919	-.1881	-.1856
	0.51		-.1870	-.1842	-.1881	-.1789	-.1827	-.1901	-.1863	-.1842
	0.73		-.1856		-.1881		-.1789		-.1827	
Nozzle 3	0.09		-.1885	-.1885	-.1863		-.1937		-.1901	-.1885
	0.30		-.1885	-.1870	-.1863		-.1901		-.1901	-.1914
	0.51		-.1899		-.1863		-.1863		-.1881	
	0.73		-.1885				-.1827			
Nozzle 6	0.09		-.1557				-.1661		-.1890	
	0.30		-.1661				-.1640		-.1827	
	0.51		-.1661				-.1661		-.1807	
	0.73								-.1764	
Shroud	0.13									.0851
	0.41									.1162
	0.62								-.1786	.1454
	0.81								-.1973	
	1.00								-.2015	.1496
Heat Shield		0.68								-.1661
		0.79								-.1703
		0.91								-.1640
		1.13	-.1744							
		1.25	-.1723							
		1.38	-.1723							
Star		0.00								
		0.12				-.0290				
		0.23				-.1038				-.0996

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = 0^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 11.9$							
Nozzle 2	0.09		-.1391	-.1405	-.1461	-.1387	-.1405	-.1555	-.1517	-.1391
	0.30		-.1391	-.1405	-.1499	-.1369	-.1405	-.1573	-.1517	-.1405
	0.51		-.1405	-.1377	-.1461	-.1275	-.1349	-.1499	-.1481	-.1362
	0.73		-.1377		-.1425		-.1293		-.1051	
Nozzle 3	0.09		-.1420	-.1420	-.1125		-.1517		-.1331	-.1449
	0.30		-.1434	-.1434	-.1499		-.1481		-.1461	-.1478
	0.51		-.1434		-.1499		-.1425		-.1425	
	0.73		-.1420				-.1405			
Nozzle 6	0.09		-.1115				-.1198		-.1386	
	0.30		-.1156				-.1156		-.1427	
	0.51		-.1178				-.1156		-.1302	
	0.73								-.1281	
Shroud	0.13									.1259
	0.41									.1633
	0.62								-.1364	.2029
	0.81								-.1552	
	1.00								-.1718	.2009
Heat Shield		0.68								-.1136
		0.79								-.1156
		0.91								-.1136
		1.13	-.1261							
		1.25	-.1261							
		1.38	-.1261							
Star		0.00								
		0.12				.0822				
		0.23				-.0219				-.0135

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 11.9$										
Nozzle 2	0.09		-.1424	-.1438	-.1478	-.1347	-.1366	-.1516	-.1516	-.1424
	0.30		-.1438	-.1452	-.1516	-.1329	-.1366	-.1516	-.1516	-.1424
	0.51		-.1438	-.1438	-.1498	-.1273	-.1309	-.1442	-.1460	-.1395
	0.73		-.1424		-.1460		-.1273		-.1404	
Nozzle 3	0.09		-.1452	-.1452	-.1516		-.1460		-.1478	-.1481
	0.30		-.1467	-.1467	-.1516		-.1404		-.1478	-.1510
	0.51		-.1481		-.1478		-.1366		-.1460	
	0.73		-.1467				-.1329			
Nozzle 6	0.09		-.1219				-.1324		-.1492	
	0.30		-.1241				-.1241		-.1451	
	0.51		-.1261				-.1261		-.1387	
	0.73								-.1366	
Shroud	0.13									.1175
	0.41									.1534
	0.62								-.1471	.1891
	0.81								-.1681	
	1.00								-.1786	.1911
Heat Shield		0.68								-.1241
		0.79								-.1261
		0.91								-.1219
		1.13	-.1346							
		1.25	-.1346							
		1.38	-.1346							
Star		0.00								
		0.12				.0777				
		0.23				-.0295				-.0232

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 11.8$										
Nozzle 2	0.09		-.1414	-.1428	-.1445	-.1332	-.1332	-.1501	-.1519	-.1428
	0.30		-.1428	-.1457	-.1501	-.1296	-.1332	-.1464	-.1483	-.1428
	0.51		-.1443	-.1443	-.1483	-.1240	-.1296	-.1388	-.1445	-.1399
	0.73		-.1414		-.1426		-.1276		-.1054	
Nozzle 3	0.09		-.1428	-.1443	-.1464		-.1445		-.1426	-.1457
	0.30		-.1443	-.1443	-.1464		-.1388		-.1464	-.1486
	0.51		-.1443		-.1445		-.1370		-.1445	
	0.73		-.1443				-.1332			
Nozzle 6	0.09		-.1202				-.1287		-.1412	
	0.30		-.1224				-.1245		-.1412	
	0.51		-.1245				-.1245		-.1370	
	0.73								-.1350	
Shroud	0.13									.0936
	0.41									.1229
	0.62								-.1454	.1501
	0.81								-.1664	
	1.00								-.1852	.1417
Heat Shield		0.68								-.1224
		0.79								-.1224
		0.91								-.1224
		1.13	-.1307							
		1.25	-.1307							
		1.38	-.1307							
Star		0.00								
		0.12				.0768				
		0.23				-.0302				-.0259

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 11.9$							
Nozzle 2	0.09		-.1459	-.1474	-.1485	-.1429	-.1447	-.1523	-.1523	-.1488
	0.30		-.1474	-.1488	-.1523	-.1410	-.1429	-.1523	-.1503	-.1488
	0.51		-.1488	-.1474	-.1523	-.1373	-.1392	-.1485	-.1485	-.1459
	0.73		-.1474		-.1485		-.1354		-.1447	
Nozzle 3	0.09		-.1488	-.1517	-.1523		-.1503		-.1485	-.1503
	0.30		-.1488	-.1517	-.1503		-.1467		-.1503	-.1517
	0.51		-.1474		-.1523		-.1410		-.1523	
	0.73		-.1474				-.1392			
Nozzle 6	0.09		-.1244				-.1391		-.1495	
	0.30		-.1286				-.1327		-.1495	
	0.51		-.1327				-.1327		-.1391	
	0.73								-.1391	
Shroud	0.13									.0770
	0.41									.1127
	0.62								-.1515	.1420
	0.81								-.1705	
	1.00								-.1915	.1461
Heat Shield		0.68								-.1286
		0.79								-.1286
		0.91								-.1264
		1.13	-.1369							
		1.25	-.1369							
		1.38	-.1369							
Star		0.00								
		0.12				.0770				
		0.23				-.0300				-.0259

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1816	-.1834	-.1717	-.1622	-.1788	-.1788	-.1836	-.1871
	0.30		-.1871	-.1871	-.1813	-.1742	-.1788	-.1860	-.1813	-.1871
	0.51		-.1871	-.1723	-.1860	-.1788	-.1860	-.1836	-.1836	-.1834
	0.73		-.1853		-.1813		-.1836		-.1813	
Nozzle 3	0.09		-.1871	-.1871	-.1860		-.1788		-.1813	-.1871
	0.30		-.1871	-.1871	-.1813		-.1836		-.1836	-.1871
	0.51		-.1871		-.1836		-.1836		-.1860	
	0.73		-.1871				-.1836			
Nozzle 6	0.09		-.1813				-.1839		-.1813	
	0.30		-.1839				-.1839		-.1839	
	0.51		-.1839				-.1839		-.1839	
	0.73								-.1839	
Shroud	0.13									.1100
	0.41									.1313
	0.62								-.1680	.1474
	0.81								-.1652	
	1.00								-.1331	.1232
Heat Shield		0.68								-.1839
		0.79								-.1839
		0.91								-.1839
		1.13	-.1866							
		1.25	-.1866							
		1.38	-.1866							
Star		0.00								
		0.12				-.1384				
		0.23				-.1437				-.1225

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1798	-.1835	-.1722	-.1602	-.1768	-.1745	-.1768	-.1835
	0.30		-.1835	-.1835	-.1768	-.1696	-.1768	-.1768	-.1745	-.1835
	0.51		-.1835	-.1706	-.1768	-.1722	-.1768	-.1768	-.1768	-.1835
	0.73		-.1835		-.1745		-.1768		-.1745	
Nozzle 3	0.09		-.1835	-.1835	-.1768		-.1768		-.1793	-.1835
	0.30		-.1853	-.1853	-.1793		-.1793		-.1768	-.1853
	0.51		-.1853		-.1768		-.1793		-.1793	
	0.73		-.1853				-.1768			
Nozzle 6	0.09		-.1784				-.1784		-.1784	
	0.30		-.1784				-.1784		-.1784	
	0.51		-.1784				-.1784		-.1784	
	0.73								-.1784	
Shroud	0.13									.1102
	0.41									.1342
	0.62								-.1625	.1531
	0.81								-.1625	
	1.00								-.1305	.1263
Heat Shield		0.68								-.1784
		0.79								-.1784
		0.91								-.1784
		1.13	-.1784							
		1.25	-.1812							
		1.38	-.1839							
Star		0.00								
		0.12				-.1464				
		0.23				-.1572				-.1277

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1780	-.1835	-.1720	-.1626	-.1746	-.1746	-.1769	-.1835
	0.30		-.1835	-.1835	-.1746	-.1674	-.1746	-.1746	-.1720	-.1835
	0.51		-.1835	-.1688	-.1769	-.1720	-.1746	-.1720	-.1746	-.1817
	0.73		-.1835		-.1746		-.1746		-.1720	
Nozzle 3	0.09		-.1835	-.1835	-.1769		-.1746		-.1769	-.1835
	0.30		-.1835	-.1835	-.1769		-.1792		-.1769	-.1835
	0.51		-.1835		-.1769		-.1746		-.1769	
	0.73		-.1835				-.1769			
Nozzle 6	0.09		-.1835				-.1891		-.1863	
	0.30		-.1891				-.1944		-.1944	
	0.51		-.1916				-.1944		-.1944	
	0.73								-.1944	
Shroud	0.13									.0767
	0.41									.0981
	0.62								-.1755	.1250
	0.81								-.1755	
	1.00								-.1488	.1089
Heat Shield		0.68								-.1891
		0.79								-.1944
		0.91								-.1944
		1.13	-.1944							
		1.25	-.1944							
		1.38	-.1944							
Star		0.00								
		0.12				-.1729				
		0.23				-.1755				-.1460

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1892	-.1929	-.1554	-.1673	-.1862	-.1862	-.1862	-.1929
	0.30		-.1929	-.1945	-.1839	-.1745	-.1862	-.1862	-.1862	-.1945
	0.51		-.1929	-.1782	-.1885	-.1791	-.1862	-.1862	-.1862	-.1929
	0.73		-.1929		-.1839		-.1862		-.1839	
Nozzle 3	0.09		-.1945	-.1945	-.1911		-.1816		-.1862	-.1945
	0.30		-.1945	-.1945	-.1862		-.1862		-.1839	-.1945
	0.51		-.1945		-.1885		-.1862		-.1862	
	0.73		-.1945				-.1862			
Nozzle 6	0.09		-.1971				-.2024		-.2024	
	0.30		-.2024				-.2024		-.2024	
	0.51		-.2024				-.2024		-.2024	
	0.73								-.2024	
Shroud	0.13									.0818
	0.41									.1060
	0.62								-.1809	.1328
	0.81								-.1837	
	1.00								-.1676	.1166
Heat Shield		0.68								-.2024
		0.79								-.2024
		0.91								-.2024
		1.13	-.2024							
		1.25	-.2024							
		1.38	-.2024							
Star		0.00								
		0.12				-.1729				
		0.23				-.1729				-.1542

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 9.4$										
Nozzle 2	0.09		-.1316	-.1344	-.1332	-.1275	-.1351	-.1351	-.1314	-.1316
	0.30		-.1344	-.1369	-.1351	-.1314	-.1351	-.1332	-.1332	-.1344
	0.51		-.1344	-.1369	-.1351	-.1295	-.1332	-.1351	-.1351	-.1344
	0.73		-.1344		-.1351		-.1295		-.1332	
Nozzle 3	0.09		-.1344	-.1344	-.1332		-.1390		-.1369	-.1344
	0.30		-.1344	-.1344	-.1369		-.1369		-.1369	-.1369
	0.51		-.1344		-.1351		-.1351		-.1351	
	0.73		-.1344				-.1351			
Nozzle 6	0.09		-.1160				-.1268		-.1321	
	0.30		-.1240				-.1268		-.1321	
	0.51		-.1215				-.1240		-.1321	
	0.73								-.1321	
Shroud	0.13									.1265
	0.41									.1482
	0.62								-.1240	.1670
	0.81								-.1403	
	1.00								-.1160	.1426
Heat Shield		0.68								-.1187
		0.79								-.1215
		0.91								-.1160
		1.13	-.1295							
		1.25	-.1268							
		1.38	-.1268							
Star		0.00	.0860							
		0.12				-.0083				-.0163
		0.23				-.0674				-.0649

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 9.4$										
Nozzle 2	0.09		-.1292	-.1345	-.1349	-.1310	-.1331	-.1349	-.1331	-.1317
	0.30		-.1345	-.1345	-.1349	-.1331	-.1331	-.1331	-.1331	-.1345
	0.51		-.1345	-.1345	-.1349	-.1310	-.1331	-.1331	-.1331	-.1345
	0.73		-.1345		-.1349		-.1292		-.1331	
Nozzle 3	0.09		-.1345	-.1345	-.1331		-.1368		-.1386	-.1345
	0.30		-.1345	-.1345	-.1368		-.1368		-.1368	-.1370
	0.51		-.1370		-.1368		-.1368		-.1349	
	0.73		-.1370				-.1331			
Nozzle 6	0.09		-.1262				-.1343		-.1423	
	0.30		-.1370				-.1343		-.1423	
	0.51		-.1370				-.1343		-.1423	
	0.73								-.1396	
Shroud	0.13									.1149
	0.41									.1366
	0.62								-.1343	.1557
	0.81								-.1504	
	1.00								-.1315	.1340
Heat Shield		0.68								-.1343
		0.79								-.1370
		0.91								-.1343
		1.13	-.1396							
		1.25	-.1370							
		1.38	-.1396							
Star		0.00	.0744							
		0.12				-.0177				-.0258
		0.23				-.0774				-.0746

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 9.4$										
Nozzle 2	0.09		-.1290	-.1315	-.1366	-.1347	-.1347	-.1366	-.1347	-.1343
	0.30		-.1343	-.1343	-.1347	-.1329	-.1329	-.1366	-.1366	-.1343
	0.51		-.1343	-.1343	-.1347	-.1310	-.1310	-.1347	-.1347	-.1343
	0.73		-.1343		-.1347		-.1310		-.1347	
Nozzle 3	0.09		-.1343	-.1343	-.1347		-.1386		-.1386	-.1343
	0.30		-.1343	-.1343	-.1366		-.1366		-.1366	-.1343
	0.51		-.1343		-.1366		-.1347		-.1366	
	0.73		-.1343				-.1347			
Nozzle 6	0.09		-.1294				-.1294		-.1375	
	0.30		-.1347				-.1347		-.1347	
	0.51		-.1347				-.1294		-.1347	
	0.73								-.1347	
Shroud	0.13									.0999
	0.41									.1214
	0.62								-.1320	.1402
	0.81								-.1483	
	1.00								-.1347	.1188
Heat Shield		0.68								-.1347
		0.79								-.1375
		0.91								-.1347
		1.13	-.1347							
		1.25	-.1347							
		1.38	-.1375							
Star		0.00	.0783							
		0.12				-.0134				-.0242
		0.23				-.0781				-.0728

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 435$; $p_j/p_\infty = 9.3$										
Nozzle 2	0.09		-.1343	-.1394	-.1373	-.1355	-.1355	-.1410	-.1373	-.1394
	0.30		-.1394	-.1394	-.1355	-.1337	-.1337	-.1410	-.1392	-.1394
	0.51		-.1394	-.1394	-.1373	-.1316	-.1337	-.1373	-.1373	-.1394
	0.73		-.1394		-.1373		-.1337		-.1337	
Nozzle 3	0.09		-.1394	-.1394	-.1392		-.1428		-.1392	-.1421
	0.30		-.1421	-.1421	-.1392		-.1392		-.1392	-.1421
	0.51		-.1421		-.1392		-.1373		-.1392	
	0.73		-.1421				-.1337			
Nozzle 6	0.09		-.1373				-.1399		-.1454	
	0.30		-.1426				-.1399		-.1454	
	0.51		-.1426				-.1426		-.1426	
	0.73								-.1426	
Shroud	0.13									.0843
	0.41									.1141
	0.62								-.1426	.1330
	0.81								-.1562	
	1.00								-.1562	.1222
Heat Shield		0.68								-.1426
		0.79								-.1426
		0.91								-.1454
		1.13	-.1454							
		1.25	-.1454							
		1.38	-.1454							
Star		0.00	.0762							
		0.12				-.0209				-.0319
		0.23				-.0831				-.0804

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.6$										
Nozzle 2	0.09		-.1165	-.1193	-.1221	-.1147	-.1221	-.1221	-.1165	-.1165
	0.30		-.1193	-.1193	-.1239	-.1147	-.1184	-.1221	-.1239	-.1165
	0.51		-.1193	-.1193	-.1221	-.1108	-.1147	-.1239	-.1202	-.1140
	0.73		-.1165		-.1202		-.1126		-.1165	
Nozzle 3	0.09		-.1193	-.1165	-.1184		-.1260		-.1260	-.1193
	0.30		-.1193	-.1165	-.1221		-.1239		-.1239	-.1193
	0.51		-.1193		-.1221		-.1221		-.1221	
	0.73		-.1193				-.1184			
Nozzle 6	0.09		-.0977				-.1085		-.1191	
	0.30		-.1057				-.1085		-.1165	
	0.51		-.1057				-.1057		-.1165	
	0.73								-.1138	
Shroud	0.13									.1278
	0.41									.1519
	0.62								-.1110	.1655
	0.81								-.1246	
	1.00								-.1110	.1466
Heat Shield		0.68								-.1004
		0.79								-.1030
		0.91								-.1004
		1.13	-.1110							
		1.25	-.1085							
		1.38	-.1057							
Star		0.00	.1788							
		0.12				.0474				.0365
		0.23				-.0253				-.0225

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.6$										
Nozzle 2	0.09		-.1215	-.1215	-.1203	-.1164	-.1185	-.1203	-.1185	-.1215
	0.30		-.1240	-.1240	-.1203	-.1146	-.1164	-.1203	-.1203	-.1215
	0.51		-.1215	-.1240	-.1203	-.1128	-.1146	-.1203	-.1203	-.1215
	0.73		-.1215		-.1203		-.1128		-.1185	
Nozzle 3	0.09		-.1240	-.1215	-.1185		-.1279		-.1258	-.1240
	0.30		-.1240	-.1240	-.1240		-.1240		-.1240	-.1240
	0.51		-.1240		-.1240		-.1185		-.1185	
	0.73		-.1240				-.1164			
Nozzle 6	0.09		-.1102				-.1183		-.1291	
	0.30		-.1210				-.1210		-.1265	
	0.51		-.1210				-.1210		-.1265	
	0.73								-.1238	
Shroud	0.13									.1167
	0.41									.1357
	0.62								-.1210	.1545
	0.81								-.1373	
	1.00								-.1265	.1330
Heat Shield		0.68								-.1183
		0.79								-.1210
		0.91								-.1210
		1.13	-.1265							
		1.25	-.1238							
		1.38	-.1238							
Star		0.00	.1681							
		0.12				.0356				.0248
		0.23				-.0372				-.0344

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1190	-.1242	-.1222	-.1203	-.1203	-.1279	-.1242	-.1217
	0.30		-.1242	-.1242	-.1203	-.1185	-.1185	-.1242	-.1242	-.1242
	0.51		-.1242	-.1242	-.1222	-.1167	-.1167	-.1222	-.1222	-.1217
	0.73		-.1242		-.1222		-.1167		-.1203	
Nozzle 3	0.09		-.1242	-.1242	-.1242		-.1242		-.1222	-.1242
	0.30		-.1242	-.1242	-.1242		-.1222		-.1222	-.1268
	0.51		-.1242		-.1242		-.1185		-.1203	
	0.73		-.1242				-.1167			
Nozzle 6	0.09		-.1158				-.1213		-.1293	
	0.30		-.1213				-.1213		-.1265	
	0.51		-.1213				-.1213		-.1240	
	0.73								-.1213	
Shroud	0.13									.0919
	0.41									.1107
	0.62								-.1240	.1297
	0.81								-.1401	
	1.00								-.1348	.1135
Heat Shield		0.68								-.1213
		0.79								-.1240
		0.91								-.1213
		1.13	-.1240							
		1.25	-.1240							
		1.38	-.1240							
Star		0.00	.1648							
		0.12				.0325				.0218
		0.23				-.0403				-.0403

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.6$										
Nozzle 2	0.09		-.1217	-.1242	-.1235	-.1235	-.1254	-.1311	-.1254	-.1217
	0.30		-.1242	-.1242	-.1254	-.1235	-.1217	-.1275	-.1275	-.1242
	0.51		-.1242	-.1242	-.1254	-.1199	-.1217	-.1235	-.1235	-.1242
	0.73		-.1242		-.1235		-.1199		-.1217	
Nozzle 3	0.09		-.1242	-.1242	-.1275		-.1275		-.1254	-.1268
	0.30		-.1242	-.1268	-.1293		-.1275		-.1254	-.1268
	0.51		-.1268		-.1293		-.1217		-.1235	
	0.73		-.1268				-.1199			
Nozzle 6	0.09		-.1183				-.1238		-.1318	
	0.30		-.1238				-.1238		-.1318	
	0.51		-.1238				-.1238		-.1291	
	0.73								-.1291	
Shroud	0.13									.0870
	0.41									.1141
	0.62								-.1373	.1330
	0.81								-.1454	
	1.00								-.1506	.1249
Heat Shield		0.68								-.1238
		0.79								-.1238
		0.91								-.1238
		1.13	-.1291							
		1.25	-.1291							
		1.38	-.1291							
Star		0.00	.1628							
		0.12				.0303				.0223
		0.23				-.0427				-.0400

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = 0^{0}$; $q_{\infty} = 438$; $p_j/p_{\infty} = 13.0$										
Nozzle 2	0.09		-.1132	-.1150	-.1097	-.1075	-.1120	-.1120	-.1097	-.1113
	0.30		-.1150	-.1168	-.1120	-.1050	-.1075	-.1120	-.1075	-.1132
	0.51		-.1150	-.1132	-.1097	-.1004	-.1050	-.1075	-.1075	-.1113
	0.73		-.1132		-.1075		-.1027		-.1075	
Nozzle 3	0.09		-.1150	-.1150	-.1075		-.1120		-.1120	-.1168
	0.30		-.1168	-.1150	-.1097		-.1097		-.1097	-.1205
	0.51		-.1186		-.1075		-.1075		-.1075	
	0.73		-.1168				-.1075			
Nozzle 6	0.09		-.0883				-.0963		-.1040	
	0.30		-.0963				-.0963		-.1040	
	0.51		-.0963				-.0935		-.0988	
	0.73								-.0988	
Shroud	0.13									.1314
	0.41									.1497
	0.62								-.0910	.1707
	0.81								-.1040	
	1.00								-.1040	.1472
Heat Shield		0.68								-.0780
		0.79								-.0833
		0.91								-.0833
		1.13	-.0883							
		1.25	-.0883							
		1.38	-.0883							
Star		0.00								
		0.12				.0894				
		0.23				.0057				.0137

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 439$; $p_j/p_\infty = 12.8$										
Nozzle 2	0.09		-.1135	-.1172	-.1122	-.1076	-.1122	-.1122	-.1122	-.1135
	0.30		-.1135	-.1172	-.1122	-.1051	-.1076	-.1147	-.1122	-.1135
	0.51		-.1154	-.1135	-.1122	-.1006	-.1028	-.1099	-.1099	-.1135
	0.73		-.1135		-.1099		-.1006		-.1051	
Nozzle 3	0.09		-.1172	-.1154	-.1122		-.1147		-.1147	-.1172
	0.30		-.1172	-.1172	-.1122		-.1122		-.1122	-.1190
	0.51		-.1172		-.1122		-.1076		-.1122	
	0.73		-.1172				-.1051			
Nozzle 6	0.09		-.0981				-.1033		-.1165	
	0.30		-.1085				-.1060		-.1138	
	0.51		-.1085				-.1060		-.1113	
	0.73								-.1085	
Shroud	0.13									.1254
	0.41									.1438
	0.62								-.1060	.1675
	0.81								-.1217	
	1.00								-.1192	.1413
Heat Shield		0.68								-.0981
		0.79								-.1008
		0.91								-.1008
		1.13	-.1060							
		1.25	-.1060							
		1.38	-.1060							
Star		0.00								
		0.12				.0728				
		0.23				-.0086				-.0007

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 444$; $p_j/p_\infty = 12.6$										
Nozzle 2	0.09		-.1114	-.1150	-.1094	-.1094	-.1116	-.1139	-.1139	-.1150
	0.30		-.1150	-.1150	-.1116	-.1069	-.1094	-.1139	-.1116	-.1150
	0.51		-.1150	-.1114	-.1116	-.1002	-.1024	-.1094	-.1116	-.1114
	0.73		-.1114		-.1116		-.1047		-.1069	
Nozzle 3	0.09		-.1150	-.1150	-.1139		-.1116		-.1116	-.1150
	0.30		-.1150	-.1150	-.1139		-.1116		-.1116	-.1150
	0.51		-.1150		-.1139		-.1047		-.1094	
	0.73		-.1150				-.1047			
Nozzle 6	0.09		-.1044				-.1123		-.1254	
	0.30		-.1150				-.1150		-.1227	
	0.51		-.1175				-.1150		-.1202	
	0.73								-.1175	
Shroud	0.13									.0911
	0.41									.1096
	0.62								-.1175	.1382
	0.81								-.1281	
	1.00								-.1305	.1121
Heat Shield		0.68								-.1096
		0.79								-.1150
		0.91								-.1150
		1.13	-.1175							
		1.25	-.1175							
		1.38	-.1175							
Star		0.00								
		0.12				.0599				
		0.23				-.0185				-.0158

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 436$; $p_j/p_{\infty} = 12.9$										
Nozzle 2	0.09		-.1124	-.1161	-.1113	-.1090	-.1113	-.1136	-.1136	-.1161
	0.30		-.1161	-.1161	-.1113	-.1113	-.1090	-.1113	-.1113	-.1161
	0.51		-.1161	-.1124	-.1113	-.1067	-.1067	-.1113	-.1113	-.1143
	0.73		-.1161		-.1090		-.1067		-.1090	
Nozzle 3	0.09		-.1161	-.1161	-.1113		-.1113		-.1113	-.1161
	0.30		-.1161	-.1179	-.1136		-.1113		-.1113	-.1179
	0.51		-.1161		-.1113		-.1090		-.1113	
	0.73		-.1161				-.1067			
Nozzle 6	0.09		-.1120				-.1253		-.1280	
	0.30		-.1200				-.1200		-.1253	
	0.51		-.1200				-.1200		-.1253	
	0.73								-.1225	
Shroud	0.13									.0856
	0.41									.1122
	0.62								-.1280	.1338
	0.81								-.1358	
	1.00								-.1494	.1257
Heat Shield		0.68								-.1172
		0.79								-.1200
		0.91								-.1172
		1.13	-.1200							
		1.25	-.1200							
		1.38	-.1200							
Star		0.00								
		0.12				.0642				
		0.23				-.0186				-.0106

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 15.4$										
Nozzle 2	0.09		-.0885	-.0910	-.0959	-.0919	-.0919	-.0995	-.0938	-.0885
	0.30		-.0910	-.0936	-.0959	-.0883	-.0919	-.0995	-.0959	-.0885
	0.51		-.0910	-.0936	-.0938	-.0807	-.0901	-.0938	-.0919	-.0885
	0.73		-.0885		-.0919		-.0844		-.0919	
Nozzle 3	0.09		-.0910	-.0885	-.0938		-.0959		-.0959	-.0936
	0.30		-.0936	-.0910	-.0959		-.0938		-.0938	-.0936
	0.51		-.0936		-.0938		-.0938		-.0938	
	0.73		-.0910				-.0919			
Nozzle 6	0.09		-.0742				-.0795		-.0823	
	0.30		-.0742				-.0768		-.0823	
	0.51		-.0742				-.0742		-.0795	
	0.73								-.0795	
Shroud	0.13									.1290
	0.41									.1478
	0.62								-.0848	.1637
	0.81								-.0984	
	1.00								-.1062	.1478
Heat Shield		0.68								-.0662
		0.79								-.0662
		0.91								-.0662
		1.13	-.0715							
		1.25	-.0742							
		1.38	-.0742							
Star		0.00	.3163							
		0.12				.1478				.1317
		0.23				.0407				.0434

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 435$; $p_j/p_\infty = 15.4$										
Nozzle 2	0.09		-.0906	-.0931	-.0938	-.0919	-.0919	-.0977	-.0956	-.0931
	0.30		-.0931	-.0956	-.0938	-.0862	-.0883	-.0938	-.0938	-.0931
	0.51		-.0931	-.0956	-.0919	-.0825	-.0825	-.0919	-.0919	-.0906
	0.73		-.0906		-.0919		-.0825		-.0901	
Nozzle 3	0.09		-.0931	-.0931	-.0938		-.0919		-.0938	-.0956
	0.30		-.0956	-.0931	-.0956		-.0919		-.0919	-.0981
	0.51		-.0956		-.0938		-.0862		-.0901	
	0.73		-.0931				-.0844			
Nozzle 6	0.09		-.0862				-.0942		-.0970	
	0.30		-.0862				-.0862		-.0970	
	0.51		-.0890				-.0862		-.0890	
	0.73								-.0890	
Shroud	0.13									.1133
	0.41									.1349
	0.62								-.0998	.1591
	0.81								-.1158	
	1.00								-.1214	.1322
Heat Shield		0.68								-.0834
		0.79								-.0834
		0.91								-.0834
		1.13	-.0890							
		1.25	-.0890							
		1.38	-.0890							
Star		0.00	.3020							
		0.12				.1322				.1186
		0.23				.0271				.0324

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 435$; $p_j/p_\infty = 15.4$										
Nozzle 2	0.09		-.0930	-.0955	-.0939	-.0882	-.0939	-.0958	-.0958	-.0955
	0.30		-.0955	-.0955	-.0939	-.0863	-.0882	-.0939	-.0958	-.0955
	0.51		-.0955	-.0955	-.0939	-.0845	-.0845	-.0882	-.0939	-.0955
	0.73		-.0955		-.0900		-.0845		-.0882	
Nozzle 3	0.09		-.0955	-.0955	-.0976		-.0939		-.0939	-.0981
	0.30		-.0955	-.0955	-.0976		-.0900		-.0939	-.0981
	0.51		-.0955		-.0958		-.0863		-.0882	
	0.73		-.0955				-.0845			
Nozzle 6	0.09		-.0808				-.0916		-.0942	
	0.30		-.0861				-.0889		-.0942	
	0.51		-.0889				-.0889		-.0889	
	0.73								-.0889	
Shroud	0.13									.0974
	0.41									.1162
	0.62								-.1024	.1378
	0.81								-.1105	
	1.00								-.1240	.1134
Heat Shield		0.68								-.0834
		0.79								-.0834
		0.91								-.0834
		1.13	-.0889							
		1.25	-.0889							
		1.38	-.0889							
Star		0.00	.3024							
		0.12				.1323				.1190
		0.23				.0299				.0271

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 15.4$										
Nozzle 2	0.09		-.0930	-.0955	-.0997	-.0939	-.0939	-.0960	-.0960	-.0955
	0.30		-.0955	-.0983	-.0997	-.0939	-.0921	-.0939	-.0939	-.0983
	0.51		-.0983	-.0983	-.0997	-.0921	-.0921	-.0939	-.0939	-.0983
	0.73		-.0983		-.0939		-.0921		-.0939	
Nozzle 3	0.09		-.0983	-.0983	-.0978		-.0960		-.0960	-.0983
	0.30		-.0983	-.0983	-.0978		-.0939		-.0978	-.0983
	0.51		-.0983		-.0978		-.0921		-.0978	
	0.73		-.0983				-.0921			
Nozzle 6	0.09		-.0836				-.1077		-.1077	
	0.30		-.0969				-.0997		-.1052	
	0.51		-.0969				-.0969		-.0997	
	0.73								-.0997	
Shroud	0.13									.0919
	0.41									.1162
	0.62								-.1185	.1295
	0.81								-.1293	
	1.00								-.1428	.1215
Heat Shield		0.68								-.0916
		0.79								-.0916
		0.91								-.0916
		1.13	-.0997							
		1.25	-.0997							
		1.38	-.0997							
Star		0.00	.2967							
		0.12				.1270				.1162
		0.23				.0243				.0243

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) M_{∞} = 2.40 - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; q_{∞} = 440; p_j/p_{∞} = 16.0										
Nozzle 2	0.09		-.0878	-.0933	-.0842	-.0794	-.0817	-.0887	-.0865	-.0896
	0.30		-.0915	-.0969	-.0865	-.0771	-.0794	-.0865	-.0842	-.0896
	0.51		-.0915	-.0915	-.0842	-.0724	-.0771	-.0817	-.0817	-.0878
	0.73		-.0896		-.0794		-.0749		-.0749	
Nozzle 3	0.09		-.0915	-.0896	-.0842		-.0865		-.0842	-.0969
	0.30		-.0933	-.0896	-.0842		-.0842		-.0842	-.0988
	0.51		-.0933		-.0842		-.0817		-.0817	
	0.73		-.0933				-.0794			
Nozzle 6	0.09		-.0726				-.0753		-.0753	
	0.30		-.0701				-.0701		-.0753	
	0.51		-.0701				-.0701		-.0726	
	0.73								-.0701	
Shroud	0.13									.1342
	0.41									.1552
	0.62								-.0726	.1734
	0.81								-.0831	
	1.00								-.1015	.1499
Heat Shield		0.68								-.0596
		0.79								-.0596
		0.91								-.0596
		1.13	-.0621							
		1.25	-.0648							
		1.38	-.0648							
Star		0.00								
		0.12				.1681				
		0.23				.0610				.0662

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_\infty = 440$; $p_j/p_\infty = 16.0$										
Nozzle 2	0.09		-.0880	-.0916	-.0846	-.0775	-.0798	-.0868	-.0868	-.0898
	0.30		-.0898	-.0934	-.0846	-.0775	-.0775	-.0823	-.0823	-.0898
	0.51		-.0898	-.0898	-.0823	-.0727	-.0727	-.0775	-.0775	-.0880
	0.73		-.0880		-.0752		-.0727		-.0752	
Nozzle 3	0.09		-.0898	-.0898	-.0846		-.0823		-.0846	-.0934
	0.30		-.0934	-.0916	-.0846		-.0775		-.0798	-.0971
	0.51		-.0934		-.0823		-.0752		-.0775	
	0.73		-.0898				-.0727			
Nozzle 6	0.09		-.0723				-.0827		-.0827	
	0.30		-.0775				-.0775		-.0827	
	0.51		-.0775				-.0748		-.0775	
	0.73								-.0775	
Shroud	0.13									.1298
	0.41									.1455
	0.62								-.0800	.1719
	0.81								-.0880	
	1.00								-.1064	.1430
Heat Shield		0.68								-.0671
		0.79								-.0671
		0.91								-.0671
		1.13	-.0696							
		1.25	-.0696							
		1.38	-.0696							
Star		0.00								
		0.12				.1614				
		0.23				.0564				.0641

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 440$; $p_j/p_{\infty} = 15.9$										
Nozzle 2	0.09		-.0864	-.0918	-.0846	-.0798	-.0823	-.0846	-.0868	-.0900
	0.30		-.0900	-.0918	-.0846	-.0775	-.0775	-.0798	-.0846	-.0900
	0.51		-.0900	-.0918	-.0823	-.0727	-.0727	-.0775	-.0775	-.0882
	0.73		-.0882		-.0775		-.0727		-.0752	
Nozzle 3	0.09		-.0900	-.0918	-.0868		-.0823		-.0823	-.0918
	0.30		-.0900	-.0918	-.0846		-.0798		-.0823	-.0918
	0.51		-.0900		-.0846		-.0752		-.0752	
	0.73		-.0882				-.0752			
Nozzle 6	0.09		-.0723				-.0827		-.0880	
	0.30		-.0775				-.0775		-.0852	
	0.51		-.0775				-.0775		-.0800	
	0.73								-.0800	
Shroud	0.13									.1114
	0.41									.1298
	0.62								-.0800	.1455
	0.81								-.0905	
	1.00								-.1089	.1350
Heat Shield		0.68								-.0643
		0.79								-.0671
		0.91								-.0643
		1.13	-.0696							
		1.25	-.0696							
		1.38	-.0696							
Star		0.00								
		0.12				.1587				
		0.23				.0564				.0616

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 440$; $p_j/p_\infty = 15.9$										
Nozzle 2	0.09		-.0918	-.0937	-.0891	-.0868	-.0891	-.0891	-.0916	-.0937
	0.30		-.0937	-.0955	-.0916	-.0868	-.0868	-.0891	-.0891	-.0937
	0.51		-.0937	-.0937	-.0916	-.0868	-.0846	-.0868	-.0891	-.0937
	0.73		-.0937		-.0891		-.0846		-.0868	
Nozzle 3	0.09		-.0937	-.0955	-.0916		-.0891		-.0891	-.0937
	0.30		-.0937	-.0955	-.0916		-.0891		-.0916	-.0955
	0.51		-.0937		-.0916		-.0868		-.0891	
	0.73		-.0955				-.0823			
Nozzle 6	0.09		-.0750				-.0987		-.0962	
	0.30		-.0857				-.0934		-.0934	
	0.51		-.0882				-.0909		-.0934	
	0.73								-.0909	
Shroud	0.13									.0978
	0.41									.1239
	0.62								-.0987	.1475
	0.81								-.1091	
	1.00								-.1171	.1319
Heat Shield		0.68								-.0725
		0.79								-.0725
		0.91								-.0725
		1.13	-.0830							
		1.25	-.0857							
		1.38	-.0830							
Star		0.00								
		0.12				.1555				
		0.23				.0507				.0584

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 455$; $p_j/p_{\infty} = 20.9$										
Nozzle 2	0.09		-.0547	-.0617	-.0472	-.0450	-.0450	-.0472	-.0472	-.0512
	0.30		-.0547	-.0617	-.0472	-.0450	-.0450	-.0472	-.0450	-.0512
	0.51		-.0529	-.0547	-.0450	-.0336	-.0426	-.0426	-.0426	-.0477
	0.73		-.0529		-.0358		-.0336		-.0358	
Nozzle 3	0.09		-.0512	-.0529	-.0472		-.0426		-.0450	-.0547
	0.30		-.0529	-.0529	-.0450		-.0450		-.0450	-.0547
	0.51		-.0494		-.0450		-.0426		-.0450	
	0.73		-.0494				-.0292			
Nozzle 6	0.09		-.0338				-.0389		-.0288	
	0.30		-.0338				-.0389		-.0314	
	0.51		-.0288				-.0314		-.0264	
	0.73								-.0163	
Shroud	0.13									.1601
	0.41									.1801
	0.62								-.0088	.2003
	0.81								-.0288	
	1.00								-.0439	.1751
Heat Shield		0.68								-.0112
		0.79								-.0112
		0.91								-.0112
		1.13	.0040							
		1.25	.0040							
		1.38	-.0011							
Star		0.00								
		0.12				.2961				
		0.23				.1601				.1676

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 440$; $p_j/p_{\infty} = 21.6$										
Nozzle 2	0.09		-.0517	-.0571	-.0489	-.0421	-.0444	-.0444	-.0444	-.0498
	0.30		-.0535	-.0589	-.0444	-.0421	-.0396	-.0421	-.0421	-.0498
	0.51		-.0517	-.0535	-.0421	-.0373	-.0396	-.0396	-.0396	-.0444
	0.73		-.0498		-.0373		-.0373		-.0373	
Nozzle 3	0.09		-.0498	-.0517	-.0514		-.0421		-.0421	-.0553
	0.30		-.0517	-.0517	-.0466		-.0421		-.0421	-.0553
	0.51		-.0517		-.0444		-.0396		-.0421	
	0.73		-.0498				-.0303			
Nozzle 6	0.09		-.0405				-.0457		-.0380	
	0.30		-.0405				-.0457		-.0405	
	0.51		-.0353				-.0405		-.0328	
	0.73								-.0273	
Shroud	0.13									.1406
	0.41									.1618
	0.62								-.0196	.1852
	0.81								-.0380	
	1.00								-.0510	.1618
Heat Shield		0.68								-.0196
		0.79								-.0196
		0.91								-.0196
		1.13	-.0039							
		1.25	-.0011							
		1.38	-.0064							
Star		0.00								
		0.12				.3088				
		0.23				.1643				.1747

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 440$; $p_j/p_{\infty} = 21.5$										
Nozzle 2	0.09		-.0516	-.0571	-.0471	-.0448	-.0448	-.0448	-.0471	-.0516
	0.30		-.0534	-.0571	-.0471	-.0448	-.0448	-.0448	-.0448	-.0498
	0.51		-.0516	-.0552	-.0448	-.0402	-.0425	-.0425	-.0425	-.0480
	0.73		-.0498		-.0402		-.0425		-.0402	
Nozzle 3	0.09		-.0516	-.0516	-.0541		-.0471		-.0471	-.0552
	0.30		-.0534	-.0534	-.0471		-.0448		-.0448	-.0571
	0.51		-.0516		-.0471		-.0448		-.0448	
	0.73		-.0498				-.0355			
Nozzle 6	0.09		-.0473				-.0552		-.0500	
	0.30		-.0500				-.0552		-.0525	
	0.51		-.0473				-.0500		-.0500	
	0.73								-.0421	
Shroud	0.13									.1032
	0.41									.1296
	0.62								-.0500	.1480
	0.81								-.0684	
	1.00								-.0764	.1296
Heat Shield		0.68								-.0314
		0.79								-.0289
		0.91								-.0289
		1.13	-.0236							
		1.25	-.0261							
		1.38	-.0289							
Star		0.00								
		0.12				.2960				
		0.23				.1534				.1559

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 440$; $p_j/p_{\infty} = 21.4$										
Nozzle 2	0.09		-.0645	-.0663	-.0609	-.0609	-.0609	-.0609	-.0631	-.0663
	0.30		-.0663	-.0700	-.0654	-.0609	-.0609	-.0631	-.0609	-.0663
	0.51		-.0663	-.0663	-.0631	-.0609	-.0609	-.0609	-.0609	-.0627
	0.73		-.0645		-.0584		-.0584		-.0609	
Nozzle 3	0.09		-.0663	-.0663	-.0654		-.0654		-.0654	-.0681
	0.30		-.0663	-.0663	-.0654		-.0631		-.0654	-.0700
	0.51		-.0663		-.0654		-.0609		-.0609	
	0.73		-.0663				-.0584			
Nozzle 6	0.09		-.0554				-.0738		-.0659	
	0.30		-.0606				-.0713		-.0686	
	0.51		-.0606				-.0659		-.0634	
	0.73								-.0606	
Shroud	0.13									.0949
	0.41									.1161
	0.62								-.0793	.1424
	0.81								-.0897	
	1.00								-.0977	.1320
Heat Shield		0.68								-.0502
		0.79								-.0475
		0.91								-.0475
		1.13	-.0527							
		1.25	-.0527							
		1.38	-.0554							
Star		0.00								
		0.12				.2875				
		0.23				.1451				.1504

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = 0^{0}$; $q_{\infty} = 540$; $p_j/p_{\infty} = 9.3$										
Nozzle 2	0.09		-.1321	-.1341	-.1389	-.1315	-.1389	-.1389	-.1360	-.1321
	0.30		-.1341	-.1341	-.1389	-.1345	-.1389	-.1389	-.1374	-.1321
	0.51		-.1341	-.1341	-.1389	-.1330	-.1374	-.1389	-.1374	-.1321
	0.73		-.1341		-.1389		-.1330		-.1374	
Nozzle 3	0.09		-.1341	-.1321	-.1389		-.1406		-.1389	-.1341
	0.30		-.1341	-.1321	-.1389		-.1406		-.1406	-.1341
	0.51		-.1341		-.1389		-.1389		-.1389	
	0.73		-.1341				-.1389			
Nozzle 6	0.09		-.1263				-.1306		-.1436	
	0.30		-.1284				-.1306		-.1371	
	0.51		-.1284				-.1284		-.1393	
	0.73								-.1371	
Shroud	0.13									.1282
	0.41									.1456
	0.62								-.1284	.1630
	0.81								-.1480	
	1.00								-.1241	.1456
Heat Shield		0.68								-.1241
		0.79								-.1241
		0.91								-.1197
		1.13	-.1328							
		1.25	-.1306							
		1.38	-.1284							
Star		0.00	.0846							
		0.12				-.0176				-.0241
		0.23				-.0741				-.0741

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 540$; $p_j/p_\infty = 9.3$										
Nozzle 2	0.09		-.1337	-.1378	-.1404	-.1343	-.1374	-.1389	-.1358	-.1378
	0.30		-.1378	-.1378	-.1389	-.1374	-.1358	-.1374	-.1374	-.1378
	0.51		-.1378	-.1398	-.1404	-.1328	-.1358	-.1374	-.1374	-.1378
	0.73		-.1378		-.1404		-.1328		-.1358	
Nozzle 3	0.09		-.1398	-.1378	-.1389		-.1419		-.1404	-.1398
	0.30		-.1398	-.1378	-.1404		-.1404		-.1404	-.1398
	0.51		-.1398		-.1404		-.1404		-.1404	
	0.73		-.1398				-.1374			
Nozzle 6	0.09		-.1221				-.1308		-.1373	
	0.30		-.1330				-.1330		-.1373	
	0.51		-.1308				-.1308		-.1373	
	0.73								-.1352	
Shroud	0.13									.1297
	0.41									.1428
	0.62								-.1308	.1623
	0.81								-.1482	
	1.00								-.1243	.1406
Heat Shield		0.68								-.1285
		0.79								-.1330
		0.91								-.1285
		1.13	-.1352							
		1.25	-.1352							
		1.38	-.1352							
Star		0.00	.0885							
		0.12				-.0180				-.0244
		0.23				-.0765				-.0700

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 540$; $p_j/p_{\infty} = 9.3$										
Nozzle 2	0.09		-.1337	-.1358	-.1374	-.1345	-.1345	-.1406	-.1374	-.1358
	0.30		-.1358	-.1378	-.1360	-.1330	-.1345	-.1406	-.1406	-.1358
	0.51		-.1358	-.1358	-.1374	-.1315	-.1330	-.1374	-.1374	-.1358
	0.73		-.1358		-.1374		-.1315		-.1360	
Nozzle 3	0.09		-.1398	-.1398	-.1374		-.1421		-.1406	-.1398
	0.30		-.1398	-.1398	-.1389		-.1389		-.1406	-.1398
	0.51		-.1398		-.1389		-.1360		-.1389	
	0.73		-.1398				-.1330			
Nozzle 6	0.09		-.1304				-.1326		-.1436	
	0.30		-.1369				-.1326		-.1391	
	0.51		-.1369				-.1326		-.1391	
	0.73								-.1369	
Shroud	0.13									.0961
	0.41									.1158
	0.62								-.1369	.1310
	0.81								-.1543	
	1.00								-.1348	.1222
Heat Shield		0.68								-.1369
		0.79								-.1391
		0.91								-.1391
		1.13	-.1391							
		1.25	-.1391							
		1.38	-.1391							
Star		0.00	.0852							
		0.12				-.0215				-.0302
		0.23				-.0804				-.0782

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 540$; $p_j/p_{\infty} = 9.3$										
Nozzle 2	0.09		-.1397	-.1419	-.1404	-.1404	-.1404	-.1450	-.1419	-.1419
	0.30		-.1419	-.1419	-.1404	-.1374	-.1374	-.1434	-.1434	-.1419
	0.51		-.1419	-.1419	-.1404	-.1328	-.1374	-.1404	-.1404	-.1419
	0.73		-.1419		-.1404		-.1374		-.1389	
Nozzle 3	0.09		-.1419	-.1419	-.1434		-.1450		-.1404	-.1419
	0.30		-.1419	-.1439	-.1434		-.1434		-.1419	-.1439
	0.51		-.1419		-.1434		-.1404		-.1419	
	0.73		-.1419				-.1374			
Nozzle 6	0.09		-.1389				-.1411		-.1521	
	0.30		-.1454				-.1454		-.1476	
	0.51		-.1434				-.1434		-.1476	
	0.73								-.1476	
Shroud	0.13									.0902
	0.41									.1185
	0.62								-.1476	.1382
	0.81								-.1586	
	1.00								-.1586	.1273
Heat Shield		0.68								-.1454
		0.79								-.1476
		0.91								-.1476
		1.13	-.1476							
		1.25	-.1498							
		1.38	-.1476							
Star		0.00	.0793							
		0.12				-.0256				-.0298
		0.23				-.0800				-.0800

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 540$; $p_j/p_{\infty} = 12.8$										
Nozzle 2	0.09		-.1145	-.1159	-.1161	-.1086	-.1086	-.1143	-.1104	-.1130
	0.30		-.1130	-.1174	-.1123	-.1047	-.1068	-.1143	-.1104	-.1145
	0.51		-.1159	-.1130	-.1104	-.0972	-.1047	-.1104	-.1104	-.1130
	0.73		-.1159		-.1086		-.1029		-.1068	
Nozzle 3	0.09		-.1174	-.1145	-.1086		-.1123		-.1104	-.1174
	0.30		-.1174	-.1145	-.1104		-.1104		-.1104	-.1189
	0.51		-.1189		-.1104		-.1086		-.1104	
	0.73		-.1174				-.1086			
Nozzle 6	0.09		-.0882				-.0945		-.1029	
	0.30		-.0925				-.0903		-.1029	
	0.51		-.0882				-.0903		-.0987	
	0.73								-.0967	
Shroud	0.13									.1390
	0.41									.1557
	0.62								-.0945	.1789
	0.81								-.1071	
	1.00								-.1029	.1537
Heat Shield		0.68								-.0798
		0.79								-.0860
		0.91								-.0818
		1.13	-.0903							
		1.25	-.0903							
		1.38	-.0882							
Star		0.00								
		0.12				.0864				
		0.23				.0022				.0086

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 540$; $p_j/p_\infty = 12.9$										
Nozzle 2	0.09		-.1132	-.1147	-.1113	-.1074	-.1093	-.1113	-.1113	-.1147
	0.30		-.1147	-.1161	-.1132	-.1056	-.1074	-.1113	-.1113	-.1147
	0.51		-.1147	-.1132	-.1113	-.0998	-.1037	-.1093	-.1074	-.1132
	0.73		-.1147		-.1093		-.1017		-.1074	
Nozzle 3	0.09		-.1161	-.1147	-.1093		-.1113		-.1113	-.1161
	0.30		-.1161	-.1147	-.1113		-.1093		-.1093	-.1176
	0.51		-.1176		-.1113		-.1056		-.1113	
	0.73		-.1176				-.1037			
Nozzle 6	0.09		-.0998				-.1063		-.1191	
	0.30		-.1063				-.1063		-.1171	
	0.51		-.1063				-.1041		-.1128	
	0.73								-.1128	
Shroud	0.13									.1256
	0.41									.1428
	0.62								-.1128	.1663
	0.81								-.1235	
	1.00								-.1213	.1363
Heat Shield		0.68								-.1041
		0.79								-.1041
		0.91								-.1041
		1.13	-.1084							
		1.25	-.1084							
		1.38	-.1084							
Star		0.00								
		0.12				.0784				
		0.23				-.0119				-.0054

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 540$; $p_j/p_\infty = 13.1$										
Nozzle 2	0.09		-.1087	-.1117	-.1110	-.1052	-.1071	-.1110	-.1110	-.1117
	0.30		-.1117	-.1132	-.1110	-.1032	-.1032	-.1089	-.1110	-.1117
	0.51		-.1117	-.1087	-.1089	-.0995	-.0995	-.1052	-.1071	-.1102
	0.73		-.1102		-.1071		-.0995		-.1032	
Nozzle 3	0.09		-.1117	-.1132	-.1110		-.1052		-.1089	-.1132
	0.30		-.1117	-.1132	-.1110		-.1052		-.1071	-.1132
	0.51		-.1117		-.1089		-.1032		-.1071	
	0.73		-.1117				-.1013			
Nozzle 6	0.09		-.0974				-.1082		-.1169	
	0.30		-.1039				-.1039		-.1126	
	0.51		-.1039				-.1039		-.1104	
	0.73								-.1104	
Shroud	0.13									.0982
	0.41									.1111
	0.62								-.1147	.1326
	0.81								-.1211	
	1.00								-.1276	.1154
Heat Shield		0.68								-.1039
		0.79								-.1061
		0.91								-.1039
		1.13	-.1082							
		1.25	-.1082							
		1.38	-.1061							
Star		0.00								
		0.12				.0767				
		0.23				-.0072				-.0072

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 540$; $p_j/p_\infty = 13.0$										
Nozzle 2	0.09		-.1104	-.1134	-.1087	-.1087	-.1106	-.1163	-.1163	-.1134
	0.30		-.1134	-.1134	-.1145	-.1087	-.1087	-.1145	-.1126	-.1134
	0.51		-.1134	-.1134	-.1126	-.1087	-.1087	-.1087	-.1106	-.1134
	0.73		-.1134		-.1106		-.1069		-.1087	
Nozzle 3	0.09		-.1148	-.1163	-.1145		-.1126		-.1126	-.1148
	0.30		-.1148	-.1163	-.1145		-.1106		-.1126	-.1163
	0.51		-.1148		-.1126		-.1069		-.1106	
	0.73		-.1134				-.1087			
Nozzle 6	0.09		-.0965				-.1135		-.1135	
	0.30		-.1072				-.1093		-.1135	
	0.51		-.1072				-.1093		-.1093	
	0.73								-.1093	
Shroud	0.13									.0998
	0.41									.1211
	0.62								-.1135	.1447
	0.81								-.1243	
	1.00								-.1371	.1382
Heat Shield		0.68								-.0987
		0.79								-.1008
		0.91								-.1008
		1.13	-.1050							
		1.25	-.1030							
		1.38	-.1050							
Star		0.00								
		0.12				.0785				
		0.23				-.0048				-.0006

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 329$; $p_j/p_\infty = 15.2$										
Nozzle 2	0.09		-.0914	-.0947	-.0941	-.0893	-.0917	-.0965	-.0941	-.0947
	0.30		-.0947	-.0981	-.0941	-.0893	-.0917	-.0965	-.0941	-.0947
	0.51		-.0947	-.0981	-.0941	-.0817	-.0893	-.0941	-.0941	-.0914
	0.73		-.0947		-.0893		-.0868		-.0893	
Nozzle 3	0.09		-.0947	-.0947	-.0917		-.0965		-.0965	-.0947
	0.30		-.0947	-.0947	-.0941		-.0941		-.0941	-.0981
	0.51		-.0947		-.0941		-.0941		-.0941	
	0.73		-.0947				-.0917			
Nozzle 6	0.09		-.0741				-.0847		-.0880	
	0.30		-.0811				-.0811		-.0880	
	0.51		-.0811				-.0774		-.0811	
	0.73								-.0811	
Shroud	0.13									.1214
	0.41									.1463
	0.62								-.0774	.1639
	0.81								-.0880	
	1.00								-.0990	.1357
Heat Shield		0.68								-.0704
		0.79								-.0704
		0.91								-.0704
		1.13	-.0704							
		1.25	-.0704							
		1.38	-.0704							
Star		0.00	.3096							
		0.12				.1393				.1251
		0.23				.0434				.0468

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 327$; $p_j/p_{\infty} = 15.3$										
Nozzle 2	0.09		-.0904	-.0938	-.0932	-.0883	-.0907	-.0956	-.0932	-.0938
	0.30		-.0938	-.0971	-.0932	-.0883	-.0883	-.0907	-.0932	-.0938
	0.51		-.0938	-.0971	-.0932	-.0858	-.0858	-.0883	-.0907	-.0938
	0.73		-.0938		-.0883		-.0858		-.0883	
Nozzle 3	0.09		-.0938	-.0938	-.0932		-.0932		-.0932	-.0938
	0.30		-.0938	-.0938	-.0932		-.0883		-.0907	-.0971
	0.51		-.0938		-.0932		-.0883		-.0883	
	0.73		-.0938				-.0858			
Nozzle 6	0.09		-.0794				-.0938		-.0938	
	0.30		-.0867				-.0867		-.0938	
	0.51		-.0867				-.0867		-.0901	
	0.73								-.0901	
Shroud	0.13									.1213
	0.41									.1429
	0.62								-.0938	.1607
	0.81								-.1045	
	1.00								-.1081	.1286
Heat Shield		0.68								-.0757
		0.79								-.0794
		0.91								-.0757
		1.13	-.0831							
		1.25	-.0831							
		1.38	-.0867							
Star		0.00	.3042							
		0.12				.1319				.1176
		0.23				.0351				.0351

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 327$; $p_j/p_{\infty} = 15.3$										
Nozzle 2	0.09		-.0870	-.0904	-.0932	-.0883	-.0883	-.0932	-.0932	-.0870
	0.30		-.0904	-.0904	-.0932	-.0883	-.0883	-.0883	-.0907	-.0904
	0.51		-.0904	-.0941	-.0883	-.0858	-.0858	-.0883	-.0883	-.0870
	0.73		-.0904		-.0883		-.0883		-.0883	
Nozzle 3	0.09		-.0904	-.0904	-.0932		-.0907		-.0907	-.0941
	0.30		-.0904	-.0904	-.0932		-.0883		-.0932	-.0941
	0.51		-.0904		-.0907		-.0858		-.0883	
	0.73		-.0870				-.0858			
Nozzle 6	0.09		-.0794				-.0901		-.0974	
	0.30		-.0901				-.0901		-.0938	
	0.51		-.0901				-.0901		-.0901	
	0.73								-.0901	
Shroud	0.13									.0962
	0.41									.1213
	0.62								-.0974	.1249
	0.81								-.1045	
	1.00								-.1155	.1142
Heat Shield		0.68								-.0867
		0.79								-.0867
		0.91								-.0867
		1.13	-.0901							
		1.25	-.0901							
		1.38	-.0901							
Star		0.00	.3042							
		0.12				.1249				.1142
		0.23				.0281				.0318

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 325$; $p_j/p_\infty = 15.4$										
Nozzle 2	0.09		-.0894	-.0928	-.0996	-.0971	-.0971	-.0971	-.0971	-.0928
	0.30		-.0928	-.0962	-.0996	-.0947	-.0947	-.0971	-.0971	-.0962
	0.51		-.0962	-.0962	-.0971	-.0947	-.0947	-.0947	-.0947	-.0962
	0.73		-.0962		-.0947		-.0922		-.0947	
Nozzle 3	0.09		-.0962	-.0962	-.0971		-.0971		-.0996	-.0962
	0.30		-.0962	-.0962	-.0996		-.0947		-.0971	-.0996
	0.51		-.0996		-.0996		-.0922		-.0947	
	0.73		-.0962				-.0922			
Nozzle 6	0.09		-.0891				-.1036		-.1036	
	0.30		-.0962				-.0999		-.0999	
	0.51		-.0999				-.0962		-.0999	
	0.73								-.0999	
Shroud	0.13									.0808
	0.41									.1097
	0.62								-.1143	.1279
	0.81								-.1251	
	1.00								-.1358	.1134
Heat Shield		0.68								-.0962
		0.79								-.0962
		0.91								-.0962
		1.13	-.0999							
		1.25	-.0962							
		1.38	-.0999							
Star		0.00	.3049							
		0.12				.1242				.1134
		0.23				.0301				.0267

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 327$; $p_j/p_{\infty} = 21.5$										
Nozzle 2	0.09		-.0527	-.0597	-.0533	-.0377	-.0377	-.0438	-.0438	-.0527
	0.30		-.0551	-.0597	-.0407	-.0346	-.0377	-.0407	-.0377	-.0527
	0.51		-.0527	-.0551	-.0377	-.0282	-.0377	-.0377	-.0346	-.0478
	0.73		-.0527		-.0312		-.0312		-.0346	
Nozzle 3	0.09		-.0527	-.0527	-.0377		-.0346		-.0377	-.0573
	0.30		-.0551	-.0551	-.0377		-.0377		-.0346	-.0573
	0.51		-.0527		-.0377		-.0377		-.0377	
	0.73		-.0527				-.0251			
Nozzle 6	0.09		-.0432				-.0432		-.0395	
	0.30		-.0432				-.0432		-.0432	
	0.51		-.0395				-.0395		-.0361	
	0.73								-.0254	
Shroud	0.13									.1476
	0.41									.1687
	0.62								-.0150	.1901
	0.81								-.0325	
	1.00								-.0432	.1617
Heat Shield		0.68								-.0077
		0.79								-.0113
		0.91								-.0113
		1.13	.0028							
		1.25	.0064							
		1.38	-.0006							
Star		0.00								
		0.12				.3102				
		0.23				.1724				.1794

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^o$; $q_\infty = 327$; $p_j/p_\infty = 21.4$										
Nozzle 2	0.09		-.0524	-.0573	-.0392	-.0392	-.0456	-.0487	-.0521	-.0524
	0.30		-.0524	-.0597	-.0456	-.0426	-.0426	-.0456	-.0456	-.0499
	0.51		-.0524	-.0524	-.0456	-.0361	-.0426	-.0426	-.0426	-.0450
	0.73		-.0499		-.0392		-.0392		-.0392	
Nozzle 3	0.09		-.0524	-.0524	-.0521		-.0456		-.0487	-.0548
	0.30		-.0548	-.0524	-.0521		-.0487		-.0456	-.0548
	0.51		-.0524		-.0487		-.0456		-.0487	
	0.73		-.0524				-.0361			
Nozzle 6	0.09		-.0459				-.0530		-.0496	
	0.30		-.0459				-.0530		-.0496	
	0.51		-.0459				-.0496		-.0459	
	0.73								-.0389	
Shroud	0.13									.1277
	0.41									.1454
	0.62								-.0459	.1702
	0.81								-.0566	
	1.00								-.0707	.1454
Heat Shield		0.68								-.0318
		0.79								-.0318
		0.91								-.0318
		1.13	-.0178							
		1.25	-.0178							
		1.38	-.0211							
Star		0.00								
		0.12				.2979				
		0.23				.1525				.1595

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 327$; $p_j/p_\infty = 21.4$										
Nozzle 2	0.09		-.0570	-.0619	-.0494	-.0432	-.0463	-.0494	-.0494	-.0570
	0.30		-.0570	-.0619	-.0463	-.0432	-.0432	-.0432	-.0432	-.0521
	0.51		-.0570	-.0570	-.0432	-.0368	-.0399	-.0399	-.0399	-.0521
	0.73		-.0546		-.0368		-.0368		-.0368	
Nozzle 3	0.09		-.0570	-.0570	-.0494		-.0463		-.0463	-.0570
	0.30		-.0570	-.0570	-.0494		-.0432		-.0432	-.0595
	0.51		-.0570		-.0432		-.0432		-.0432	
	0.73		-.0546				-.0337			
Nozzle 6	0.09		-.0521				-.0628		-.0595	
	0.30		-.0558				-.0558		-.0558	
	0.51		-.0558				-.0521		-.0521	
	0.73								-.0451	
Shroud	0.13									.1042
	0.41									.1364
	0.62								-.0487	.1505
	0.81								-.0628	
	1.00								-.0699	.1401
Heat Shield		0.68								-.0310
		0.79								-.0343
		0.91								-.0310
		1.13	-.0273							
		1.25	-.0273							
		1.38	-.0310							
Star		0.00								
		0.12				.2931				
		0.23				.1472				.1579

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(c) $M_{\infty} = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -8^{0}$; $q_{\infty} = 327$; $p_j/p_{\infty} = 21.4$										
Nozzle 2	0.09		-.0692	-.0716	-.0594	-.0594	-.0594	-.0594	-.0594	-.0716
	0.30		-.0716	-.0765	-.0625	-.0594	-.0594	-.0594	-.0594	-.0716
	0.51		-.0716	-.0741	-.0594	-.0563	-.0563	-.0594	-.0594	-.0668
	0.73		-.0692		-.0563		-.0563		-.0563	
Nozzle 3	0.09		-.0716	-.0716	-.0625		-.0594		-.0625	-.0716
	0.30		-.0716	-.0716	-.0625		-.0625		-.0594	-.0765
	0.51		-.0716		-.0594		-.0563		-.0594	
	0.73		-.0716				-.0563			
Nozzle 6	0.09		-.0664				-.0842		-.0805	
	0.30		-.0772				-.0842		-.0805	
	0.51		-.0735				-.0772		-.0772	
	0.73								-.0735	
Shroud	0.13									.0903
	0.41									.1151
	0.62								-.0842	.1366
	0.81								-.0986	
	1.00								-.1020	.1258
Heat Shield		0.68								-.0594
		0.79								-.0557
		0.91								-.0594
		1.13	-.0594							
		1.25	-.0594							
		1.38	-.0628							
Star		0.00								
		0.12				.2789				
		0.23				.1366				.1436

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 315$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1531	-.1531	-.1178	-.1178	-.1245	-.1277	-.1375	-.1531
	0.30		-.1531	-.1531	-.1245	-.1309	-.1277	-.1375	-.1340	-.1531
	0.51		-.1531	-.1328	-.1375	-.1245	-.1375	-.1309	-.1375	-.1531
	0.73		-.1531		-.1245		-.1340		-.1147	
Nozzle 3	0.09		-.1531	-.1531	-.1375		-.1245		-.1245	-.1531
	0.30		-.1531	-.1531	-.1277		-.1375		-.1277	-.1531
	0.51		-.1531		-.1340		-.1309		-.1340	
	0.73		-.1531				-.1277			
Nozzle 6	0.09		-.1401				-.1439		-.1477	
	0.30		-.1477				-.1477		-.1477	
	0.51		-.1477				-.1477		-.1477	
	0.73								-.1477	
Shroud	0.13									.0997
	0.41									.1074
	0.62								-.1182	.1147
	0.81								-.1182	
	1.00								-.0921	.0629
Heat Shield		0.68								-.1439
		0.79								-.1477
		0.91								-.1512
		1.13	-.1512							
		1.25	-.1477							
		1.38	-.1477							
Star		0.00								
		0.12				-.1328				
		0.23				-.1328				-.0810

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_{\infty} = 315$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1506	-.1506	-.1436	-.1306	-.1306	-.1471	-.1537	-.1506
	0.30		-.1506	-.1506	-.1404	-.1372	-.1471	-.1569	-.1471	-.1506
	0.51		-.1506	-.1302	-.1537	-.1471	-.1537	-.1502	-.1537	-.1506
	0.73		-.1506		-.1436		-.1502		-.1471	
Nozzle 3	0.09		-.1506	-.1506	-.1537		-.1471		-.1502	-.1506
	0.30		-.1506	-.1506	-.1502		-.1502		-.1140	-.1506
	0.51		-.1506		-.1537		-.1471		-.1537	
	0.73		-.1506				-.1471			
Nozzle 6	0.09		-.1366				-.1401		-.1401	
	0.30		-.1401				-.1401		-.1439	
	0.51		-.1439				-.1439		-.1439	
	0.73								-.1401	
Shroud	0.13									.1109
	0.41									.1182
	0.62								-.1217	.1331
	0.81								-.1255	
	1.00								-.0994	.0924
Heat Shield		0.68								-.1401
		0.79								-.1401
		0.91								-.1401
		1.13	-.1401							
		1.25	-.1070							
		1.38	-.1290							
Star		0.00								
		0.12				-.1290				
		0.23				-.1290				-.0775

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_\infty = 315$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1429	-.1455	-.1245	-.1178	-.1309	-.1245	-.1344	-.1429
	0.30		-.1455	-.1455	-.1213	-.1245	-.1245	-.1344	-.1245	-.1429
	0.51		-.1455	-.1255	-.1375	-.1245	-.1344	-.1213	-.1344	-.1429
	0.73		-.1429		-.1178		-.1344		-.1147	
Nozzle 3	0.09		-.1429	-.1429	-.1344		-.1277		-.1344	-.1455
	0.30		-.1455	-.1455	-.1245		-.1344		-.1213	-.1455
	0.51		-.1455		-.1344		-.1245		-.1344	
	0.73		-.1455				-.1178			
Nozzle 6	0.09		-.1258				-.1331		-.1331	
	0.30		-.1366				-.1366		-.1366	
	0.51		-.1366				-.1366		-.1366	
	0.73								-.1366	
Shroud	0.13									.0950
	0.41									.1058
	0.62								-.1182	.1207
	0.81								-.1147	
	1.00								-.1036	.0839
Heat Shield		0.68								-.1293
		0.79								-.1293
		0.91								-.1293
		1.13	-.1331							
		1.25	-.1331							
		1.38	-.1331							
Star		0.00								
		0.12				-.1220				
		0.23				-.1258				-.0743

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 315$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1456	-.1506	-.1342	-.1310	-.1377	-.1342	-.1377	-.1506
	0.30		-.1506	-.1506	-.1212	-.1279	-.1279	-.1377	-.1247	-.1506
	0.51		-.1506	-.1380	-.1310	-.1180	-.1342	-.1247	-.1310	-.1481
	0.73		-.1506		-.1180		-.1310		-.1212	
Nozzle 3	0.09		-.1506	-.1506	-.1342		-.1247		-.1377	-.1506
	0.30		-.1506	-.1506	-.1310		-.1342		-.1180	-.1506
	0.51		-.1506		-.1342		-.1247		-.1342	
	0.73		-.1506				-.1180			
Nozzle 6	0.09		-.1367				-.1440		-.1478	
	0.30		-.1478				-.1478		-.1478	
	0.51		-.1478				-.1478		-.1478	
	0.73								-.1478	
Shroud	0.13									.0874
	0.41									.1130
	0.62								-.1294	.1279
	0.81								-.1329	
	1.00								-.1222	.0946
Heat Shield		0.68								-.1405
		0.79								-.1478
		0.91								-.1478
		1.13	-.1478							
		1.25	-.1478							
		1.38	-.1478							
Star		0.00								
		0.12				-.1440				
		0.23				-.1440				-.0927

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 19.0$										
Nozzle 2	0.09		-.0480	-.0555	-.0496	-.0496	-.0522	-.0552	-.0496	-.0555
	0.30		-.0555	-.0555	-.0496	-.0496	-.0496	-.0522	-.0522	-.0555
	0.51		-.0555	-.0555	-.0522	-.0496	-.0496	-.0522	-.0496	-.0519
	0.73		-.0519		-.0522		-.0496		-.0522	
Nozzle 3	0.09		-.0555	-.0555	-.0522		-.0578		-.0578	-.0555
	0.30		-.0555	-.0555	-.0578		-.0552		-.0522	-.0555
	0.51		-.0555		-.0522		-.0552		-.0552	
	0.73		-.0519				-.0522			
Nozzle 6	0.09		-.0499				-.0535		-.0575	
	0.30		-.0575				-.0575		-.0575	
	0.51		-.0575				-.0575		-.0575	
	0.73								-.0575	
Shroud	0.13									.1238
	0.41									.1278
	0.62								-.0535	.1317
	0.81								-.0614	
	1.00								-.0729	.0815
Heat Shield		0.68								-.0460
		0.79								-.0499
		0.91								-.0499
		1.13	-.0499							
		1.25	-.0499							
		1.38	-.0535							
Star		0.00	.2940							
		0.12				.1626				.1432
		0.23				.0700				.0739

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 18.9$										
Nozzle 2	0.09		-.0585	-.0624	-.0549	-.0549	-.0549	-.0549	-.0522	-.0585
	0.30		-.0624	-.0624	-.0549	-.0549	-.0549	-.0549	-.0549	-.0624
	0.51		-.0585	-.0624	-.0549	-.0549	-.0522	-.0549	-.0549	-.0624
	0.73		-.0624		-.0522		-.0522		-.0549	
Nozzle 3	0.09		-.0624	-.0624	-.0575		-.0549		-.0575	-.0624
	0.30		-.0624	-.0624	-.0549		-.0549		-.0549	-.0624
	0.51		-.0624		-.0549		-.0549		-.0549	
	0.73		-.0624				-.0522			
Nozzle 6	0.09		-.0535				-.0535		-.0575	
	0.30		-.0535				-.0535		-.0575	
	0.51		-.0575				-.0575		-.0575	
	0.73								-.0575	
Shroud	0.13									.1202
	0.41									.1317
	0.62								-.0575	.1432
	0.81								-.0693	
	1.00								-.0808	.1008
Heat Shield		0.68								-.0499
		0.79								-.0499
		0.91								-.0499
		1.13	-.0535							
		1.25	-.0535							
		1.38	-.0535							
Star		0.00	.2940							
		0.12				.1587				.1432
		0.23				.0660				.0700

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 18.9$										
Nozzle 2	0.09		-.0552	-.0624	-.0552	-.0552	-.0552	-.0552	-.0552	-.0588
	0.30		-.0624	-.0624	-.0552	-.0552	-.0522	-.0552	-.0522	-.0624
	0.51		-.0624	-.0624	-.0552	-.0552	-.0522	-.0522	-.0522	-.0588
	0.73		-.0588		-.0522		-.0522		-.0552	
Nozzle 3	0.09		-.0624	-.0624	-.0552		-.0552		-.0552	-.0660
	0.30		-.0660	-.0624	-.0552		-.0552		-.0552	-.0660
	0.51		-.0624		-.0552		-.0552		-.0552	
	0.73		-.0624				-.0522			
Nozzle 6	0.09		-.0611				-.0650		-.0650	
	0.30		-.0650				-.0650		-.0650	
	0.51		-.0650				-.0650		-.0650	
	0.73								-.0650	
Shroud	0.13									.0900
	0.41									.1018
	0.62								-.0687	.1094
	0.81								-.0765	
	1.00								-.0959	.0824
Heat Shield		0.68								-.0572
		0.79								-.0611
		0.91								-.0572
		1.13	-.0650							
		1.25	-.0650							
		1.38	-.0650							
Star		0.00	.2838							
		0.12				.1521				.1327
		0.23				.0591				.0591

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 18.9$										
Nozzle 2	0.09		-.0588	-.0624	-.0604	-.0604	-.0604	-.0604	-.0604	-.0624
	0.30		-.0624	-.0660	-.0604	-.0604	-.0604	-.0604	-.0604	-.0624
	0.51		-.0624	-.0660	-.0604	-.0604	-.0604	-.0604	-.0604	-.0624
	0.73		-.0624		-.0604		-.0604		-.0604	
Nozzle 3	0.09		-.0624	-.0624	-.0604		-.0604		-.0604	-.0624
	0.30		-.0624	-.0624	-.0604		-.0604		-.0604	-.0624
	0.51		-.0624		-.0604		-.0604		-.0604	
	0.73		-.0588				-.0575			
Nozzle 6	0.09		-.0575				-.0654		-.0654	
	0.30		-.0654				-.0654		-.0654	
	0.51		-.0654				-.0654		-.0654	
	0.73								-.0654	
Shroud	0.13									.0969
	0.41									.1163
	0.62								-.0654	.1357
	0.81								-.0729	
	1.00								-.0808	.1048
Heat Shield		0.68								-.0535
		0.79								-.0535
		0.91								-.0575
		1.13	-.0575							
		1.25	-.0575							
		1.38	-.0575							
Star		0.00	.2900							
		0.12				.1587				.1357
		0.23				.0660				.0700

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.5$										
Nozzle 2	0.09		-.0406	-.0442	-.0317	-.0288	-.0344	-.0370	-.0317	-.0442
	0.30		-.0442	-.0442	-.0317	-.0288	-.0317	-.0317	-.0317	-.0442
	0.51		-.0442	-.0442	-.0317	-.0288	-.0317	-.0317	-.0317	-.0406
	0.73		-.0406		-.0288		-.0288		-.0317	
Nozzle 3	0.09		-.0406	-.0442	-.0344		-.0344		-.0344	-.0442
	0.30		-.0442	-.0442	-.0344		-.0344		-.0344	-.0442
	0.51		-.0442		-.0344		-.0344		-.0344	
	0.73		-.0442				-.0317			
Nozzle 6	0.09		-.0357				-.0393		-.0357	
	0.30		-.0357				-.0393		-.0393	
	0.51		-.0393				-.0393		-.0357	
	0.73								-.0357	
Shroud	0.13									.1293
	0.41									.1368
	0.62								-.0317	.1368
	0.81								-.0393	
	1.00								-.0471	.0910
Heat Shield		0.68								-.0242
		0.79								-.0278
		0.91								-.0278
		1.13	-.0242							
		1.25	-.0242							
		1.38	-.0242							
Star		0.00	.4280							
		0.12				.2402				.2248
		0.23				.1329				.1368

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.7$										
Nozzle 2	0.09		-.0365	-.0438	-.0332	-.0306	-.0332	-.0332	-.0332	-.0402
	0.30		-.0438	-.0438	-.0332	-.0306	-.0306	-.0332	-.0332	-.0402
	0.51		-.0402	-.0402	-.0332	-.0332	-.0332	-.0332	-.0332	-.0402
	0.73		-.0402		-.0306		-.0306		-.0306	
Nozzle 3	0.09		-.0402	-.0402	-.0362		-.0332		-.0362	-.0438
	0.30		-.0402	-.0402	-.0332		-.0332		-.0332	-.0402
	0.51		-.0402		-.0332		-.0332		-.0332	
	0.73		-.0402				-.0306			
Nozzle 6	0.09		-.0421				-.0421		-.0421	
	0.30		-.0461				-.0461		-.0421	
	0.51		-.0461				-.0461		-.0421	
	0.73								-.0421	
Shroud	0.13									.1158
	0.41									.1274
	0.62								-.0461	.1353
	0.81								-.0540	
	1.00								-.0655	.1004
Heat Shield		0.68								-.0346
		0.79								-.0385
		0.91								-.0385
		1.13	-.0346							
		1.25	-.0385							
		1.38	-.0385							
Star		0.00	.4285							
		0.12				.2393				.2202
		0.23				.1274				.1274

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.7$										
Nozzle 2	0.09		-.0365	-.0402	-.0359	-.0332	-.0359	-.0359	-.0332	-.0365
	0.30		-.0402	-.0402	-.0332	-.0332	-.0359	-.0359	-.0332	-.0402
	0.51		-.0402	-.0402	-.0359	-.0332	-.0359	-.0359	-.0359	-.0365
	0.73		-.0402		-.0332		-.0359		-.0359	
Nozzle 3	0.09		-.0402	-.0402	-.0359		-.0359		-.0359	-.0438
	0.30		-.0438	-.0438	-.0359		-.0359		-.0359	-.0438
	0.51		-.0438		-.0359		-.0332		-.0332	
	0.73		-.0438				-.0332			
Nozzle 6	0.09		-.0457				-.0533		-.0497	
	0.30		-.0497				-.0533		-.0497	
	0.51		-.0497				-.0497		-.0533	
	0.73								-.0497	
Shroud	0.13									.0819
	0.41									.1014
	0.62								-.0612	.1053
	0.81								-.0652	
	1.00								-.0727	.0780
Heat Shield		0.68								-.0497
		0.79								-.0497
		0.91								-.0497
		1.13	-.0497							
		1.25	-.0497							
		1.38	-.0497							
Star		0.00	.4186							
		0.12				.2291				.2096
		0.23				.1168				.1208

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) M_∞ = 2.87 - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
α = -8°; q_∞ = 304; p_j/p_∞ = 23.6										
Nozzle 2	0.09		-.0477	-.0513	-.0438	-.0385	-.0438	-.0438	-.0411	-.0513
	0.30		-.0513	-.0513	-.0438	-.0411	-.0438	-.0438	-.0438	-.0513
	0.51		-.0513	-.0513	-.0438	-.0411	-.0438	-.0438	-.0438	-.0513
	0.73		-.0513		-.0438		-.0438		-.0438	
Nozzle 3	0.09		-.0550	-.0513	-.0438		-.0438		-.0438	-.0550
	0.30		-.0550	-.0513	-.0438		-.0438		-.0438	-.0550
	0.51		-.0513		-.0438		-.0438		-.0438	
	0.73		-.0513				-.0438			
Nozzle 6	0.09		-.0530				-.0609		-.0609	
	0.30		-.0609				-.0648		-.0648	
	0.51		-.0648				-.0648		-.0648	
	0.73								-.0648	
Shroud	0.13									.0866
	0.41									.1023
	0.62								-.0685	.1218
	0.81								-.0724	
	1.00								-.0724	.0905
Heat Shield		0.68								-.0490
		0.79								-.0490
		0.91								-.0490
		1.13	-.0530							
		1.25	-.0530							
		1.38	-.0530							
Star		0.00	.4127							
		0.12				.2189				.2031
		0.23				.1178				.1218

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 318$; $p_j/p_{\infty} = 25.5$										
Nozzle 2	0.09		-.0400	-.0450	-.0246	-.0148	-.0277	-.0277	-.0246	-.0425
	0.30		-.0425	-.0450	-.0246	-.0246	-.0246	-.0277	-.0246	-.0425
	0.51		-.0450	-.0400	-.0277	-.0183	-.0277	-.0246	-.0277	-.0400
	0.73		-.0425		-.0246		-.0246		.0013	
Nozzle 3	0.09		-.0450	-.0450	-.0277		-.0277		-.0277	-.0450
	0.30		-.0450	-.0450	-.0246		-.0277		-.0277	-.0450
	0.51		-.0450		-.0277		-.0277		-.0277	
	0.73		-.0450				-.0214			
Nozzle 6	0.09		-.0346				-.0384		-.0346	
	0.30		-.0384				-.0346		-.0346	
	0.51		-.0346				-.0346		-.0346	
	0.73								-.0274	
Shroud	0.13									.1187
	0.41									.1297
	0.62								-.0308	.1335
	0.81								-.0384	
	1.00								-.0491	.0822
Heat Shield		0.68								-.0201
		0.79								-.0236
		0.91								-.0236
		1.13	-.0164							
		1.25	-.0164							
		1.38	-.0201							
Star		0.00								
		0.12				.2795				
		0.23				.1590				.1627

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 318$; $p_j/p_{\infty} = 25.4$										
Nozzle 2	0.09		-.0349	-.0450	-.0246	-.0183	-.0246	-.0214	-.0246	-.0400
	0.30		-.0400	-.0400	-.0246	-.0246	-.0246	-.0246	-.0246	-.0400
	0.51		-.0400	-.0349	-.0246	-.0214	-.0214	-.0214	-.0246	-.0349
	0.73		-.0349		-.0214		-.0246		-.0214	
Nozzle 3	0.09		-.0400	-.0400	-.0277		-.0246		-.0277	-.0425
	0.30		-.0400	-.0400	-.0246		-.0277		-.0246	-.0400
	0.51		-.0400		-.0246		-.0246		-.0277	
	0.73		-.0400				-.0214			
Nozzle 6	0.09		-.0346				-.0384		-.0346	
	0.30		-.0384				-.0384		-.0384	
	0.51		-.0346				-.0384		-.0384	
	0.73								-.0308	
Shroud	0.13									.1187
	0.41									.1297
	0.62								-.0384	.1445
	0.81								-.0419	
	1.00								-.0491	.1004
Heat Shield		0.68								-.0236
		0.79								-.0236
		0.91								-.0236
		1.13	-.0236							
		1.25	-.0236							
		1.38	-.0236							
Star		0.00								
		0.12				.2757				
		0.23				.1590				.1590

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 318$; $p_j/p_{\infty} = 25.1$										
Nozzle 2	0.09		-.0475	-.0500	-.0249	-.0183	-.0280	-.0249	-.0280	-.0475
	0.30		-.0475	-.0475	-.0249	-.0249	-.0249	-.0249	-.0249	-.0475
	0.51		-.0475	-.0425	-.0249	-.0249	-.0249	-.0249	-.0249	-.0425
	0.73		-.0425		-.0249		-.0249		.0076	
Nozzle 3	0.09		-.0475	-.0475	-.0280		-.0280		-.0280	-.0475
	0.30		-.0475	-.0475	-.0249		-.0280		-.0280	-.0475
	0.51		-.0475		-.0280		-.0249		-.0249	
	0.73		-.0475				-.0249			
Nozzle 6	0.09		-.0346				-.0384		-.0384	
	0.30		-.0384				-.0384		-.0384	
	0.51		-.0384				-.0384		-.0384	
	0.73								-.0384	
Shroud	0.13									.0969
	0.41									.1114
	0.62								-.0419	.1187
	0.81								-.0456	
	1.00								-.0456	.0969
Heat Shield		0.68								-.0274
		0.79								-.0308
		0.91								-.0274
		1.13	-.0274							
		1.25	-.0308							
		1.38	-.0308							
Star		0.00								
		0.12				.2650				
		0.23				.1517				.1590

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 318$; $p_j/p_\infty = 25.2$										
Nozzle 2	0.09		-.0500	-.0526	-.0403	-.0274	-.0438	-.0403	-.0403	-.0500
	0.30		-.0500	-.0500	-.0403	-.0403	-.0403	-.0403	-.0403	-.0500
	0.51		-.0500	-.0475	-.0403	-.0403	-.0438	-.0403	-.0403	-.0475
	0.73		-.0500		-.0403		-.0403		-.0403	
Nozzle 3	0.09		-.0500	-.0500	-.0438		-.0438		-.0438	-.0526
	0.30		-.0500	-.0500	-.0438		-.0438		-.0403	-.0500
	0.51		-.0500		-.0438		-.0403		-.0403	
	0.73		-.0500				-.0403			
Nozzle 6	0.09		-.0453				-.0526		-.0491	
	0.30		-.0491				-.0563		-.0526	
	0.51		-.0491				-.0526		-.0526	
	0.73								-.0526	
Shroud	0.13									.0900
	0.41									.1121
	0.62								-.0563	.1265
	0.81								-.0601	
	1.00								-.0636	.0973
Heat Shield		0.68								-.0343
		0.79								-.0343
		0.91								-.0343
		1.13	-.0343							
		1.25	-.0381							
		1.38	-.0419							
Star		0.00								
		0.12				.2584				
		0.23				.1448				.1523

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 31.3$										
Nozzle 2	0.09		-.0079	-.0079	-.0148	.0066	-.0177	-.0148	-.0122	-.0079
	0.30		-.0079	-.0079	-.0122	-.0095	-.0095	-.0122	-.0122	-.0079
	0.51		-.0079	-.0079	-.0122	-.0095	-.0122	-.0122	-.0122	-.0043
	0.73		-.0043		-.0095		-.0095		-.0122	
Nozzle 3	0.09		-.0079	-.0079	-.0148		-.0177		-.0177	-.0079
	0.30		-.0079	-.0043	-.0177		-.0122		-.0122	-.0043
	0.51		-.0043		-.0148		-.0148		-.0148	
	0.73		-.0043				-.0095			
Nozzle 6	0.09		-.0194				-.0194		-.0154	
	0.30		-.0154				-.0154		-.0154	
	0.51		-.0154				-.0154		-.0154	
	0.73								-.0115	
Shroud	0.13									.1347
	0.41									.1386
	0.62								.0000	.1501
	0.81								-.0079	
	1.00								-.0154	.1002
Heat Shield		0.68								.0039
		0.79								.0039
		0.91								.0039
		1.13	.0115							
		1.25	.0154							
		1.38	.0115							
Star		0.00	.6280							
		0.12				.3774				.3659
		0.23				.2273				.2312

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 31.2$										
Nozzle 2	0.09		-.0109	-.0181	-.0118	.0069	-.0145	-.0118	-.0092	-.0181
	0.30		-.0181	-.0181	-.0092	-.0066	-.0066	-.0066	-.0092	-.0181
	0.51		-.0109	-.0109	-.0092	-.0066	-.0092	-.0092	-.0092	-.0109
	0.73		-.0109		-.0066		-.0092		-.0092	
Nozzle 3	0.09		-.0109	-.0145	-.0174		-.0174		-.0174	-.0145
	0.30		-.0109	-.0109	-.0145		-.0145		-.0145	-.0145
	0.51		-.0109		-.0145		-.0118		-.0118	
	0.73		-.0109				-.0092			
Nozzle 6	0.09		-.0191				-.0267		-.0151	
	0.30		-.0191				-.0267		-.0191	
	0.51		-.0191				-.0191		-.0191	
	0.73								-.0151	
Shroud	0.13									.1237
	0.41									.1353
	0.62								-.0191	.1432
	0.81								-.0346	
	1.00								-.0382	.1122
Heat Shield		0.68								-.0076
		0.79								-.0076
		0.91								-.0076
		1.13	.0003							
		1.25	.0003							
		1.38	-.0036							
Star		0.00	.6141							
		0.12				.3709				.3554
		0.23				.2241				.2241

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 31.2$										
Nozzle 2	0.09		-.0189	-.0189	-.0209	.0033	-.0209	-.0183	-.0154	-.0189
	0.30		-.0189	-.0189	-.0154	-.0127	-.0127	-.0154	-.0127	-.0189
	0.51		-.0189	-.0189	-.0154	-.0127	-.0154	-.0154	-.0154	-.0154
	0.73		-.0189		-.0127		-.0154		-.0127	
Nozzle 3	0.09		-.0189	-.0189	-.0209		-.0235		-.0235	-.0189
	0.30		-.0189	-.0189	-.0209		-.0209		-.0183	-.0189
	0.51		-.0189		-.0183		-.0183		-.0183	
	0.73		-.0189				-.0154			
Nozzle 6	0.09		-.0242				-.0278		-.0203	
	0.30		-.0242				-.0278		-.0242	
	0.51		-.0242				-.0278		-.0242	
	0.73								-.0242	
Shroud	0.13									.0986
	0.41									.1140
	0.62								-.0278	.1140
	0.81								-.0356	
	1.00								-.0392	.0908
Heat Shield		0.68								-.0124
		0.79								-.0124
		0.91								-.0124
		1.13	-.0049							
		1.25	-.0049							
		1.38	-.0124							
Star		0.00	.6118							
		0.12				.3707				.3514
		0.23				.2211				.2211

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 31.3$										
Nozzle 2	0.09		-.0253	-.0290	-.0280	-.0036	-.0280	-.0280	-.0253	-.0290
	0.30		-.0290	-.0290	-.0280	-.0253	-.0253	-.0253	-.0253	-.0290
	0.51		-.0290	-.0290	-.0253	-.0253	-.0253	-.0280	-.0253	-.0290
	0.73		-.0290		-.0227		-.0253		-.0253	
Nozzle 3	0.09		-.0290	-.0290	-.0253		-.0280		-.0280	-.0290
	0.30		-.0290	-.0290	-.0253		-.0253		-.0253	-.0290
	0.51		-.0290		-.0253		-.0253		-.0253	
	0.73		-.0290				-.0253			
Nozzle 6	0.09		-.0342				-.0382		-.0342	
	0.30		-.0342				-.0382		-.0382	
	0.51		-.0382				-.0382		-.0342	
	0.73								-.0342	
Shroud	0.13									.0931
	0.41									.1126
	0.62								-.0497	.1241
	0.81								-.0536	
	1.00								-.0536	.1050
Heat Shield		0.68								-.0227
		0.79								-.0227
		0.91								-.0267
		1.13	-.0227							
		1.25	-.0227							
		1.38	-.0267							
Star		0.00	.6111							
		0.12				.3600				.3446
		0.23				.2133				.2169

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 319$; $p_j/p_{\infty} = 42.4$										
Nozzle 2	0.09		.0041	.0016	.0125	.0669	.0091	.0125	.0156	.0016
	0.30		.0016	.0016	.0188	.0188	.0156	.0156	.0188	.0016
	0.51		.0041	.0041	.0188	.0219	.0188	.0188	.0188	.0041
	0.73		.0041		.0253		.0219		.0219	
Nozzle 3	0.09		.0041	.0041	.0188		.0188		.0156	.0016
	0.30		.0041	.0016	.0188		.0188		.0219	.0016
	0.51		.0041		.0188		.0219		.0188	
	0.73		.0041				.0253			
Nozzle 6	0.09		.0103				.0103		.0175	
	0.30		.0141				.0103		.0141	
	0.51		.0141				.0141		.0141	
	0.73								.0213	
Shroud	0.13									.1328
	0.41									.1438
	0.62								.0319	.1547
	0.81								.0141	
	1.00								.0103	.1041
Heat Shield		0.68								.0356
		0.79								.0356
		0.91								.0394
		1.13	.0466							
		1.25	.0466							
		1.38	.0428							
Star		0.00								
		0.12				.5872				
		0.23				.3853				.3959

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 319$; $p_j/p_\infty = 42.2$										
Nozzle 2	0.09		.0019	-.0006	.0069	.0617	.0069	.0131	.0100	.0019
	0.30		.0019	.0019	.0131	.0131	.0131	.0131	.0131	.0019
	0.51		.0019	.0019	.0131	.0166	.0166	.0166	.0131	.0019
	0.73		.0019		.0260		.0197		.0197	
Nozzle 3	0.09		-.0006	.0019	.0100		.0100		.0100	-.0006
	0.30		.0019	.0019	.0131		.0131		.0166	.0019
	0.51		.0019		.0166		.0166		.0131	
	0.73		.0019				.0197			
Nozzle 6	0.09		.0081				.0047		.0119	
	0.30		.0081				.0047		.0081	
	0.51		.0081				.0047		.0081	
	0.73								.0119	
Shroud	0.13									.1208
	0.41									.1390
	0.62								.0081	.1537
	0.81								-.0025	
	1.00								-.0100	.1099
Heat Shield		0.68								.0229
		0.79								.0229
		0.91								.0301
		1.13	.0338							
		1.25	.0338							
		1.38	.0301							
Star		0.00								
		0.12				.5751				
		0.23				.3788				.3826

TABLE II. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 319$; $p_j/p_\infty = 42.0$										
Nozzle 2	0.09		.0072	.0022	.0069	.0615	.0069	.0132	.0132	.0022
	0.30		.0022	.0022	.0132	.0132	.0132	.0132	.0166	.0047
	0.51		.0022	.0047	.0132	.0166	.0166	.0166	.0166	.0072
	0.73		.0072		.0198		.0132		.0358	
Nozzle 3	0.09		.0022	.0022	.0132		.0100		.0100	.0022
	0.30		.0022	.0022	.0166		.0132		.0132	.0022
	0.51		.0022		.0132		.0166		.0132	
	0.73		.0022				.0166			
Nozzle 6	0.09		.0009				.0009		.0047	
	0.30		.0009				.0009		.0009	
	0.51		.0009				.0009		.0009	
	0.73								.0047	
Shroud	0.13									.1029
	0.41									.1173
	0.62								.0082	.1211
	0.81								.0009	
	1.00								-.0063	.0991
Heat Shield		0.68								.0229
		0.79								.0229
		0.91								.0263
		1.13	.0373							
		1.25	.0339							
		1.38	.0301							
Star		0.00								
		0.12				.5790				
		0.23				.3792				.3792

TABLE II. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 319$; $p_j/p_{\infty} = 42.0$										
Nozzle 2	0.09		-.0081	-.0157	-.0028	.0551	.0003	.0069	.0069	-.0131
	0.30		-.0106	-.0131	.0069	.0069	.0069	.0069	.0069	-.0131
	0.51		-.0131	-.0106	.0069	.0069	.0069	.0069	.0069	-.0106
	0.73		-.0106		.0100		.0069		.0069	
Nozzle 3	0.09		-.0131	-.0131	.0069		.0003		-.0059	-.0157
	0.30		-.0157	-.0157	.0069		.0069		.0069	-.0157
	0.51		-.0157		.0069		.0069		.0069	
	0.73		-.0157				.0069			
Nozzle 6	0.09		-.0200				-.0238		-.0200	
	0.30		-.0200				-.0238		-.0200	
	0.51		-.0200				-.0238		-.0200	
	0.73								-.0200	
Shroud	0.13									.0895
	0.41									.1114
	0.62								-.0200	.1224
	0.81								-.0272	
	1.00								-.0347	.0967
Heat Shield		0.68								.0019
		0.79								.0056
		0.91								-.0019
		1.13	.0166							
		1.25	.0166							
		1.38	.0091							
Star		0.00								
		0.12				.5532				
		0.23				.3635				.3635

TABLE III

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = 0^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.3161	-.3175	-.3136	-.2962	-.3161	-.3136	-.3136	-.3187
	0.30		-.3187	-.3187	-.3173	-.3037	-.3161	-.3136	-.3136	-.3175
	0.51		-.3187	-.3201	-.3173	-.3049	-.3148	-.3136	-.3124	-.3201
	0.73		-.3187		-.3161		-.3136		-.3111	
Nozzle 3	0.09		-.3201	-.3187	-.3124		-.3161		-.3161	-.3201
	0.30		-.3187	-.3187	-.3111		-.3161		-.3161	-.3201
	0.51		-.3187		-.3111		-.3161		-.3161	
	0.73		-.3187				-.3148			
Nozzle 6	0.09		-.3031				-.3086		-.2407	
	0.30		-.3100				-.3114		-.2879	
	0.51		-.3114				-.3142		-.3142	
	0.73								-.3170	
Shroud	0.13									.3660
	0.41									.4741
	0.62								-.3294	.3356
	0.81								-.3364	
	1.00								-.3350	.3023
Heat Shield		0.68								-.3184
		0.79								-.3184
		0.91								-.3184
		1.13	-.3072							
		1.25	-.3184							
		1.38	-.3224							
Star		0.00	-.2213							
		0.12				-.2227				-.2213
		0.23				-.2311				-.2241

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.3167	-.3179	-.3112	-.2928	-.3088	-.3088	-.3112	-.3193
	0.30		-.3193	-.3193	-.3162	-.2988	-.3100	-.3088	-.3100	-.3193
	0.51		-.3193	-.3193	-.3162	-.2988	-.3088	-.3088	-.3088	-.3193
	0.73		-.3193		-.3137		-.3088		-.3063	
Nozzle 3	0.09		-.3193	-.3193	-.3088		-.3100		-.3137	-.3193
	0.30		-.3193	-.3193	-.3100		-.3112		-.3150	-.3193
	0.51		-.3179		-.3088		-.3112		-.3137	
	0.73		-.3179				-.3100			
Nozzle 6	0.09		-.3075				-.3117		-.2411	
	0.30		-.3131				-.3145		-.2812	
	0.51		-.3131				-.3145		-.3131	
	0.73								-.3159	
Shroud	0.13									.3568
	0.41									.4744
	0.62								-.3159	.3360
	0.81								-.3241	
	1.00								-.3353	.2889
Heat Shield		0.68								-.3159
		0.79								-.3159
		0.91								-.3159
		1.13	-.3103							
		1.25	-.3227							
		1.38	-.3255							
Star		0.00	-.2328							
		0.12				-.2356				-.2287
		0.23				-.2452				-.2328

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ∅ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3157	-.3157	-.3177	-.3016	-.3140	-.3140	-.3165	-.3197
	0.30		-.3197	-.3197	-.3214	-.3066	-.3140	-.3140	-.3140	-.3197
	0.51		-.3197	-.3197	-.3190	-.3016	-.3165	-.3140	-.3140	-.3197
	0.73		-.3197		-.3177		-.3140		-.3115	
Nozzle 3	0.09		-.3197	-.3197	-.3152		-.3140		-.3202	-.3197
	0.30		-.3197	-.3197	-.3152		-.3152		-.3202	-.3197
	0.51		-.3197		-.3140		-.3165		-.3177	
	0.73		-.3183				-.3140			
Nozzle 6	0.09		-.3066				-.3052		-.2417	
	0.30		-.3135				-.3108		-.2734	
	0.51		-.3122				-.3135		-.3135	
	0.73								-.3149	
Shroud	0.13									.3510
	0.41									.4283
	0.62								-.3038	.3191
	0.81								-.3163	
	1.00								-.3357	.2487
Heat Shield		0.68								-.3149
		0.79								-.3163
		0.91								-.3163
		1.13	-.3149							
		1.25	-.3218							
		1.38	-.3218							
Star		0.00	-.2513							
		0.12				-.2541				-.2459
		0.23				-.2624				-.2459

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.3238	-.3264	-.3255	-.3168	-.3255	-.3267	-.3292	-.3291
	0.30		-.3291	-.3291	-.3280	-.3156	-.3243	-.3255	-.3255	-.3291
	0.51		-.3291	-.3291	-.3292	-.3129	-.3230	-.3243	-.3230	-.3291
	0.73		-.3278		-.3267		-.3218		-.3181	
Nozzle 3	0.09		-.3238	-.3252	-.3230		-.3243		-.3280	-.3252
	0.30		-.3238	-.3252	-.3218		-.3243		-.3243	-.3238
	0.51		-.3238		-.3168		-.3230		-.3230	
	0.73		-.3238				-.3230			
Nozzle 6	0.09		-.3134				-.3202		-.2208	
	0.30		-.3216				-.3216		-.2691	
	0.51		-.3202				-.3230		-.3230	
	0.73								-.3258	
Shroud	0.13									.4014
	0.41									.4829
	0.62								-.3009	.2908
	0.81								-.3160	
	1.00								-.3396	.2299
Heat Shield		0.68								-.3244
		0.79								-.3244
		0.91								-.3244
		1.13	-.3258							
		1.25	-.3258							
		1.38	-.3258							
Star		0.00	-.2899							
		0.12				-.2927				-.2829
		0.23				-.2954				-.2815

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = 0^{0}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.0$										
Nozzle 2	0.09		-.3487	-.3514	-.3324	-.3227	-.3227	-.3510	-.3498	-.3514
	0.30		-.3527	-.3541	-.3399	-.3324	-.3312	-.3473	-.3486	-.3487
	0.51		-.3527	-.3554	-.3498	-.3287	-.3473	-.3498	-.3498	-.3514
	0.73		-.3527		-.3461		-.3461		-.3510	
Nozzle 3	0.09		-.3514	-.3514	-.3473		-.3386		-.3337	-.3527
	0.30		-.3527	-.3514	-.3486		-.3349		-.3362	-.3514
	0.51		-.3514		-.3486		-.3473		-.3461	
	0.73		-.3527				-.3448			
Nozzle 6	0.09		-.3182				-.3196		-.2507	
	0.30		-.3306				-.3306		-.3320	
	0.51		-.3278				-.3278		-.3376	
	0.73								-.3362	
Shroud	0.13									.3724
	0.41									.4785
	0.62								-.3238	.3393
	0.81								-.3306	
	1.00								-.3292	.3118
Heat Shield		0.68								-.3154
		0.79								-.3140
		0.91								-.3100
		1.13	-.3306							
		1.25	-.3278							
		1.38	-.3264							
Star		0.00	-.2313							
		0.12				-.2603				-.2617
		0.23				-.2851				-.2824

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 3.0$										
Nozzle 2	0.09		-.3575	-.3614	-.3410	-.3237	-.3261	-.3570	-.3546	-.3575
	0.30		-.3601	-.3628	-.3447	-.3348	-.3397	-.3509	-.3533	-.3561
	0.51		-.3587	-.3614	-.3533	-.3323	-.3521	-.3570	-.3558	-.3575
	0.73		-.3587		-.3496		-.3484		-.3570	
Nozzle 3	0.09		-.3601	-.3601	-.3558		-.3336		-.3385	-.3614
	0.30		-.3601	-.3601	-.3558		-.3422		-.3385	-.3614
	0.51		-.3601		-.3570		-.3546		-.3521	
	0.73		-.3601				-.3533			
Nozzle 6	0.09		-.3257				-.3229		-.2376	
	0.30		-.3366				-.3353		-.3297	
	0.51		-.3339				-.3339		-.3366	
	0.73								-.3366	
Shroud	0.13									.3564
	0.41									.4692
	0.62								-.3119	.3373
	0.81								-.3201	
	1.00								-.3297	.2960
Heat Shield		0.68								-.3215
		0.79								-.3215
		0.91								-.3187
		1.13	-.3366							
		1.25	-.3339							
		1.38	-.3325							
Star		0.00	-.2362							
		0.12				-.2637				-.2679
		0.23				-.2884				-.2898

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.0$										
Nozzle 2	0.09		-.3572	-.3638	-.3587	-.3300	-.3438	-.3612	-.3600	-.3560
	0.30		-.3624	-.3665	-.3624	-.3425	-.3487	-.3612	-.3600	-.3546
	0.51		-.3612	-.3624	-.3612	-.3400	-.3550	-.3637	-.3612	-.3560
	0.73		-.3586		-.3600		-.3538		-.3612	
Nozzle 3	0.09		-.3624	-.3586	-.3612		-.3487		-.3563	-.3665
	0.30		-.3624	-.3586	-.3612		-.3550		-.3563	-.3651
	0.51		-.3624		-.3612		-.3587		-.3587	
	0.73		-.3612				-.3575			
Nozzle 6	0.09		-.3325				-.3215		-.2446	
	0.30		-.3422				-.3380		-.3297	
	0.51		-.3408				-.3366		-.3422	
	0.73								-.3422	
Shroud	0.13									.3564
	0.41									.4335
	0.62								-.3036	.3221
	0.81								-.3147	
	1.00								-.3339	.2506
Heat Shield		0.68								-.3366
		0.79								-.3353
		0.91								-.3339
		1.13	-.3462							
		1.25	-.3448							
		1.38	-.3422							
Star		0.00	-.2432							
		0.12				-.2721				-.2747
		0.23				-.2982				-.2940

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 3.0$										
Nozzle 2	0.09		-.3640	-.3705	-.3533	-.3323	-.3533	-.3743	-.3694	-.3652
	0.30		-.3692	-.3719	-.3582	-.3446	-.3620	-.3743	-.3694	-.3626
	0.51		-.3692	-.3705	-.3620	-.3384	-.3595	-.3781	-.3719	-.3652
	0.73		-.3678		-.3632		-.3607		-.3719	
Nozzle 3	0.09		-.3692	-.3692	-.3669		-.3558		-.3521	-.3719
	0.30		-.3705	-.3692	-.3682		-.3632		-.3533	-.3719
	0.51		-.3705		-.3694		-.3632		-.3582	
	0.73		-.3705				-.3632			
Nozzle 6	0.09		-.3497				-.3222		-.2340	
	0.30		-.3539				-.3483		-.3278	
	0.51		-.3511				-.3483		-.3567	
	0.73								-.3581	
Shroud	0.13									.3963
	0.41									.4819
	0.62								-.3015	.2860
	0.81								-.3180	
	1.00								-.3429	.2267
Heat Shield		0.68								-.3567
		0.79								-.3567
		0.91								-.3539
		1.13	-.3581							
		1.25	-.3581							
		1.38	-.3567							
Star		0.00	-.2519							
		0.12				-.2863				-.2823
		0.23				-.3112				-.3056

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = 0^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2369	-.2400	-.2388	-.2228	-.2388	-.2402	-.2402	-.2400
	0.30		-.2400	-.2400	-.2402	-.2301	-.2373	-.2388	-.2388	-.2400
	0.51		-.2400	-.2400	-.2402	-.2301	-.2373	-.2373	-.2373	-.2400
	0.73		-.2400		-.2388		-.2388		-.2373	
Nozzle 3	0.09		-.2400	-.2386	-.2344		-.2359		-.2373	-.2386
	0.30		-.2386	-.2369	-.2359		-.2359		-.2373	-.2386
	0.51		-.2369		-.2359		-.2359		-.2359	
	0.73		-.2386				-.2359			
Nozzle 6	0.09		-.2301				-.2331		-.2187	
	0.30		-.2364				-.2397		-.2380	
	0.51		-.2380				-.2397		-.2397	
	0.73								-.2397	
Shroud	0.13									.3590
	0.41									.4169
	0.62								-.2172	.2560
	0.81								-.2203	
	1.00								-.2058	.2207
Heat Shield		0.68								-.2397
		0.79								-.2397
		0.91								-.2380
		1.13	-.2397							
		1.25	-.2397							
		1.38	-.2397							
Star		0.00	-.1705							
		0.12				-.1721				-.1721
		0.23				-.1769				-.1738

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2395	-.2411	-.2386	-.2228	-.2386	-.2400	-.2415	-.2426
	0.30		-.2426	-.2426	-.2415	-.2299	-.2386	-.2386	-.2400	-.2426
	0.51		-.2426	-.2442	-.2415	-.2313	-.2386	-.2386	-.2386	-.2426
	0.73		-.2426		-.2400		-.2386		-.2386	
Nozzle 3	0.09		-.2426	-.2426	-.2386		-.2386		-.2386	-.2426
	0.30		-.2426	-.2426	-.2386		-.2386		-.2386	-.2426
	0.51		-.2426		-.2386		-.2386		-.2386	
	0.73		-.2426				-.2371			
Nozzle 6	0.09		-.2331				-.2364		-.2123	
	0.30		-.2348				-.2413		-.2331	
	0.51		-.2364				-.2397		-.2413	
	0.73								-.2413	
Shroud	0.13									.3685
	0.41									.4395
	0.62								-.2107	.2319
	0.81								-.2156	
	1.00								-.2091	.2125
Heat Shield		0.68								-.2397
		0.79								-.2397
		0.91								-.2397
		1.13	-.2380							
		1.25	-.2397							
		1.38	-.2397							
Star		0.00	-.1769							
		0.12				-.1801				-.1752
		0.23				-.1866				-.1752

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2392	-.2424	-.2361	-.2231	-.2332	-.2404	-.2390	-.2424
	0.30		-.2424	-.2424	-.2390	-.2289	-.2318	-.2376	-.2390	-.2424
	0.51		-.2424	-.2439	-.2404	-.2289	-.2332	-.2347	-.2376	-.2424
	0.73		-.2424		-.2390		-.2376		-.2376	
Nozzle 3	0.09		-.2424	-.2424	-.2361		-.2361		-.2376	-.2424
	0.30		-.2424	-.2424	-.2376		-.2347		-.2361	-.2424
	0.51		-.2424		-.2361		-.2332		-.2376	
	0.73		-.2424				-.2332			
Nozzle 6	0.09		-.2300				-.2363		-.2187	
	0.30		-.2363				-.2379		-.2316	
	0.51		-.2363				-.2395		-.2412	
	0.73								-.2412	
Shroud	0.13									.3240
	0.41									.3595
	0.62								-.2171	.2209
	0.81								-.2218	
	1.00								-.2187	.1614
Heat Shield		0.68								-.2395
		0.79								-.2412
		0.91								-.2412
		1.13	-.2412							
		1.25	-.2412							
		1.38	-.2412							
Star		0.00	-.1945							
		0.12				-.1961				-.1929
		0.23				-.2026				-.1929

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2515	-.2531	-.2433	-.2332	-.2419	-.2491	-.2491	-.2547
	0.30		-.2562	-.2562	-.2433	-.2390	-.2419	-.2448	-.2462	-.2562
	0.51		-.2562	-.2562	-.2448	-.2404	-.2419	-.2433	-.2462	-.2562
	0.73		-.2562		-.2462		-.2419		-.2433	
Nozzle 3	0.09		-.2531	-.2531	-.2433		-.2419		-.2433	-.2515
	0.30		-.2531	-.2531	-.2433		-.2419		-.2433	-.2515
	0.51		-.2515		-.2433		-.2404		-.2433	
	0.73		-.2515				-.2404			
Nozzle 6	0.09		-.2394				-.2475		-.2216	
	0.30		-.2459				-.2475		-.2379	
	0.51		-.2459				-.2491		-.2508	
	0.73								-.2508	
Shroud	0.13									.3506
	0.41									.3877
	0.62								-.2314	.1540
	0.81								-.2347	
	1.00								-.2379	.1589
Heat Shield		0.68								-.2508
		0.79								-.2524
		0.91								-.2508
		1.13	-.2524							
		1.25	-.2524							
		1.38	-.2524							
Star		0.00	-.2120							
		0.12				-.2137				-.2104
		0.23				-.2169				-.2104

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 5.5$										
Nozzle 2	0.09		-.2179	-.2195	-.1983	-.1983	-.2027	-.2170	-.2185	-.2195
	0.30		-.2195	-.2195	-.2127	-.2056	-.2156	-.2185	-.2185	-.2179
	0.51		-.2195	-.2195	-.2185	-.2012	-.2185	-.2199	-.2199	-.2179
	0.73		-.2195		-.2141		-.2141		-.2185	
Nozzle 3	0.09		-.2195	-.2179	-.2170		-.2027		-.2027	-.2179
	0.30		-.2179	-.2179	-.2170		-.2127		-.2141	-.2179
	0.51		-.2195		-.2185		-.2170		-.2170	
	0.73		-.2195				-.2156			
Nozzle 6	0.09		-.1902				-.1902		-.2014	
	0.30		-.1918				-.1934		-.2014	
	0.51		-.1885				-.1885		-.2061	
	0.73								-.2014	
Shroud	0.13									.3671
	0.41									.4264
	0.62								-.1949	.2627
	0.81								-.1998	
	1.00								-.1949	.2273
Heat Shield		0.68								-.1853
		0.79								-.1869
		0.91								-.1757
		1.13	-.1949							
		1.25	-.1902							
		1.38	-.1869							
Star		0.00	-.0553							
		0.12				-.1178				-.1260
		0.23				-.1612				-.1548

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 552$; $p_j/p_\infty = 5.5$										
Nozzle 2	0.09		-.2207	-.2207	-.2035	-.2049	-.2122	-.2238	-.2252	-.2207
	0.30		-.2221	-.2238	-.2151	-.2107	-.2223	-.2267	-.2252	-.2238
	0.51		-.2252	-.2252	-.2238	-.2078	-.2252	-.2267	-.2267	-.2238
	0.73		-.2252		-.2209		-.2209		-.2252	
Nozzle 3	0.09		-.2252	-.2252	-.2252		-.2151		-.2064	-.2252
	0.30		-.2252	-.2252	-.2252		-.2238		-.2209	-.2238
	0.51		-.2252		-.2267		-.2267		-.2252	
	0.73		-.2252				-.2238			
Nozzle 6	0.09		-.2008				-.2008		-.2087	
	0.30		-.2038				-.2038		-.2120	
	0.51		-.2008				-.2024		-.2169	
	0.73								-.2136	
Shroud	0.13									.3718
	0.41									.4331
	0.62								-.2038	.2267
	0.81								-.2055	
	1.00								-.2071	.2138
Heat Shield		0.68								-.2038
		0.79								-.2038
		0.91								-.1975
		1.13	-.2087							
		1.25	-.2055							
		1.38	-.2024							
Star		0.00	-.0669							
		0.12				-.1314				-.1393
		0.23				-.1749				-.1701

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 5.5$										
Nozzle 2	0.09		-.2219	-.2250	-.2063	-.2063	-.2106	-.2237	-.2266	-.2235
	0.30		-.2250	-.2250	-.2193	-.2150	-.2208	-.2266	-.2266	-.2250
	0.51		-.2250	-.2266	-.2251	-.2106	-.2251	-.2266	-.2266	-.2250
	0.73		-.2250		-.2222		-.2208		-.2266	
Nozzle 3	0.09		-.2250	-.2250	-.2266		-.2179		-.2106	-.2250
	0.30		-.2266	-.2250	-.2266		-.2266		-.2208	-.2250
	0.51		-.2266		-.2266		-.2266		-.2266	
	0.73		-.2266				-.2237			
Nozzle 6	0.09		-.2034				-.2050		-.2132	
	0.30		-.2099				-.2099		-.2148	
	0.51		-.2066				-.2066		-.2197	
	0.73								-.2181	
Shroud	0.13									.3272
	0.41									.3597
	0.62								-.2099	.2204
	0.81								-.2148	
	1.00								-.2164	.1607
Heat Shield		0.68								-.2099
		0.79								-.2115
		0.91								-.2050
		1.13	-.2148							
		1.25	-.2132							
		1.38	-.2115							
Star		0.00	-.0675							
		0.12				-.1354				-.1469
		0.23				-.1792				-.1759

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) M_{∞} = 2.00 - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; q_{∞} = 552; p_j/p_{∞} = 5.5										
Nozzle 2	0.09		-.2303	-.2303	-.2114	-.2129	-.2216	-.2315	-.2315	-.2303
	0.30		-.2303	-.2317	-.2187	-.2143	-.2257	-.2330	-.2315	-.2303
	0.51		-.2333	-.2333	-.2286	-.2129	-.2301	-.2315	-.2330	-.2303
	0.73		-.2333		-.2272		-.2230		-.2301	
Nozzle 3	0.09		-.2333	-.2333	-.2301		-.2257		-.2129	-.2333
	0.30		-.2333	-.2333	-.2301		-.2301		-.2216	-.2333
	0.51		-.2333		-.2315		-.2301		-.2286	
	0.73		-.2333				-.2257			
Nozzle 6	0.09		-.2089				-.2121		-.2201	
	0.30		-.2138				-.2138		-.2217	
	0.51		-.2138				-.2138		-.2283	
	0.73								-.2250	
Shroud	0.13									.3517
	0.41									.3888
	0.62								-.2170	.1535
	0.81								-.2266	
	1.00								-.2362	.1633
Heat Shield		0.68								-.2170
		0.79								-.2187
		0.91								-.2187
		1.13	-.2234							
		1.25	-.2217							
		1.38	-.2217							
Star		0.00	-.0720							
		0.12				-.1412				-.1493
		0.23				-.1816				-.1767

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1929	-.1950	-.1748	-.1711	-.1766	-.1839	-.1858	-.1989
	0.30		-.1989	-.1989	-.1766	-.1729	-.1766	-.1839	-.1839	-.1989
	0.51		-.1989	-.1989	-.1839	-.1748	-.1821	-.1803	-.1839	-.1989
	0.73		-.1989		-.1821		-.1839		-.1839	
Nozzle 3	0.09		-.1989	-.1989	-.1839		-.1784		-.1784	-.1989
	0.30		-.1989	-.1989	-.1839		-.1803		-.1766	-.1989
	0.51		-.1989		-.1839		-.1803		-.1803	
	0.73		-.1989				-.1803			
Nozzle 6	0.09		-.1927				-.1947		-.1743	
	0.30		-.1927				-.1947		-.1947	
	0.51		-.1947				-.1947		-.1947	
	0.73								-.1947	
Shroud	0.13									.3291
	0.41									.3598
	0.62								-.1601	.1736
	0.81								-.1621	
	1.00								-.1518	.1428
Heat Shield		0.68								-.1947
		0.79								-.1947
		0.91								-.1947
		1.13	-.1947							
		1.25	-.1947							
		1.38	-.1947							
Star		0.00	-.1376							
		0.12				-.1376				-.1376
		0.23				-.1497				-.1396

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1886	-.1925	-.1798	-.1724	-.1780	-.1798	-.1835	-.1925
	0.30		-.1925	-.1925	-.1798	-.1743	-.1761	-.1798	-.1798	-.1925
	0.51		-.1925	-.1925	-.1798	-.1724	-.1780	-.1780	-.1798	-.1925
	0.73		-.1925		-.1780		-.1798		-.1780	
Nozzle 3	0.09		-.1925	-.1925	-.1780		-.1743		-.1780	-.1925
	0.30		-.1925	-.1925	-.1780		-.1780		-.1761	-.1925
	0.51		-.1925		-.1780		-.1780		-.1780	
	0.73		-.1925				-.1780			
Nozzle 6	0.09		-.1863				-.1863		-.1738	
	0.30		-.1863				-.1902		-.1884	
	0.51		-.1884				-.1884		-.1902	
	0.73								-.1902	
Shroud	0.13									.3576
	0.41									.4008
	0.62								-.1512	.1701
	0.81								-.1553	
	1.00								-.1491	.1537
Heat Shield		0.68								-.1884
		0.79								-.1923
		0.91								-.1902
		1.13	-.1902							
		1.25	-.1923							
		1.38	-.1902							
Star		0.00	-.1470							
		0.12				-.1512				-.1449
		0.23				-.1553				-.1449

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1869	-.1926	-.1744	-.1707	-.1744	-.1763	-.1800	-.1926
	0.30		-.1926	-.1926	-.1781	-.1763	-.1763	-.1781	-.1781	-.1926
	0.51		-.1926	-.1926	-.1781	-.1744	-.1781	-.1763	-.1781	-.1926
	0.73		-.1926		-.1781		-.1781		-.1781	
Nozzle 3	0.09		-.1926	-.1926	-.1781		-.1763		-.1781	-.1926
	0.30		-.1926	-.1926	-.1781		-.1781		-.1763	-.1926
	0.51		-.1926		-.1781		-.1763		-.1781	
	0.73		-.1926				-.1763			
Nozzle 6	0.09		-.1843				-.1843		-.1843	
	0.30		-.1864				-.1864		-.1885	
	0.51		-.1864				-.1885		-.1906	
	0.73								-.1906	
Shroud	0.13									.3200
	0.41									.3405
	0.62								-.1557	.1518
	0.81								-.1620	
	1.00								-.1578	.1354
Heat Shield		0.68								-.1906
		0.79								-.1906
		0.91								-.1906
		1.13	-.1906							
		1.25	-.1906							
		1.38	-.1906							
Star		0.00	-.1578							
		0.12				-.1599				-.1578
		0.23				-.1599				-.1578

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1966	-.2026	-.1836	-.1818	-.1818	-.1855	-.1892	-.2065
	0.30		-.2065	-.2065	-.1855	-.1855	-.1818	-.1855	-.1855	-.2065
	0.51		-.2065	-.2065	-.1855	-.1818	-.1855	-.1855	-.1892	-.2065
	0.73		-.2065		-.1855		-.1855		-.1855	
Nozzle 3	0.09		-.2065	-.2065	-.1892		-.1818		-.1873	-.2065
	0.30		-.2065	-.2065	-.1855		-.1836		-.1836	-.2065
	0.51		-.2065		-.1892		-.1836		-.1855	
	0.73		-.2065				-.1836			
Nozzle 6	0.09		-.1883				-.1924		-.1862	
	0.30		-.1966				-.1966		-.1966	
	0.51		-.1966				-.1986		-.1986	
	0.73								-.1986	
Shroud	0.13									.3449
	0.41									.3551
	0.62								-.1802	.1472
	0.81								-.1862	
	1.00								-.1802	.1410
Heat Shield		0.68								-.1986
		0.79								-.2007
		0.91								-.2007
		1.13	-.2028							
		1.25	-.2028							
		1.38	-.2007							
Star		0.00	-.1760							
		0.12				-.1781				-.1760
		0.23				-.1802				-.1760

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 10.1$										
Nozzle 2	0.09		-.1343	-.1382	-.1238	-.1201	-.1275	-.1293	-.1293	-.1382
	0.30		-.1382	-.1401	-.1293	-.1238	-.1293	-.1293	-.1293	-.1362
	0.51		-.1382	-.1401	-.1293	-.1201	-.1293	-.1293	-.1293	-.1362
	0.73		-.1382		-.1256		-.1219		-.1275	
Nozzle 3	0.09		-.1382	-.1362	-.1256		-.1256		-.1238	-.1382
	0.30		-.1382	-.1362	-.1256		-.1293		-.1275	-.1382
	0.51		-.1382		-.1275		-.1275		-.1275	
	0.73		-.1382				-.1238			
Nozzle 6	0.09		-.1118				-.1157		-.1279	
	0.30		-.1178				-.1178		-.1240	
	0.51		-.1157				-.1157		-.1240	
	0.73								-.1240	
Shroud	0.13									.3539
	0.41									.3927
	0.62								-.1157	.1973
	0.81								-.1279	
	1.00								-.1261	.1688
Heat Shield		0.68								-.1098
		0.79								-.1118
		0.91								-.1077
		1.13	-.1157							
		1.25	-.1157							
		1.38	-.1157							
Star		0.00	.1160							
		0.12				.0142				-.0039
		0.23				-.0549				-.0466

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 10.0$										
Nozzle 2	0.09		-.1383	-.1422	-.1310	-.1310	-.1383	-.1401	-.1401	-.1422
	0.30		-.1422	-.1422	-.1383	-.1328	-.1383	-.1401	-.1401	-.1422
	0.51		-.1422	-.1422	-.1383	-.1292	-.1365	-.1383	-.1383	-.1422
	0.73		-.1422		-.1383		-.1328		-.1365	
Nozzle 3	0.09		-.1422	-.1422	-.1383		-.1401		-.1383	-.1422
	0.30		-.1422	-.1422	-.1383		-.1383		-.1401	-.1422
	0.51		-.1422		-.1401		-.1383		-.1383	
	0.73		-.1422				-.1328			
Nozzle 6	0.09		-.1260				-.1280		-.1401	
	0.30		-.1301				-.1301		-.1342	
	0.51		-.1280				-.1280		-.1360	
	0.73								-.1342	
Shroud	0.13									.3644
	0.41									.3989
	0.62								-.1301	.1772
	0.81								-.1381	
	1.00								-.1381	.1609
Heat Shield		0.68								-.1260
		0.79								-.1280
		0.91								-.1280
		1.13	-.1321							
		1.25	-.1321							
		1.38	-.1321							
Star		0.00	.1061							
		0.12				.0082				-.0160
		0.23				-.0670				-.0608

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 10.0$										
Nozzle 2	0.09		-.1349	-.1367	-.1278	-.1278	-.1314	-.1351	-.1351	-.1367
	0.30		-.1367	-.1388	-.1351	-.1278	-.1296	-.1369	-.1351	-.1367
	0.51		-.1367	-.1388	-.1351	-.1260	-.1296	-.1351	-.1351	-.1367
	0.73		-.1367		-.1314		-.1260		-.1296	
Nozzle 3	0.09		-.1388	-.1367	-.1333		-.1351		-.1351	-.1388
	0.30		-.1388	-.1367	-.1351		-.1333		-.1314	-.1388
	0.51		-.1367		-.1333		-.1314		-.1333	
	0.73		-.1388				-.1260			
Nozzle 6	0.09		-.1301				-.1321		-.1383	
	0.30		-.1321				-.1321		-.1362	
	0.51		-.1321				-.1321		-.1383	
	0.73								-.1362	
Shroud	0.13									.3289
	0.41									.3472
	0.62								-.1342	.1644
	0.81								-.1445	
	1.00								-.1465	.1522
Heat Shield		0.68								-.1321
		0.79								-.1321
		0.91								-.1321
		1.13	-.1321							
		1.25	-.1342							
		1.38	-.1342							
Star		0.00	.1056							
		0.12				.0018				-.0185
		0.23				-.0651				-.0610

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 10.2$										
Nozzle 2	0.09		-.1477	-.1557	-.1383	-.1402	-.1420	-.1438	-.1438	-.1537
	0.30		-.1537	-.1557	-.1402	-.1383	-.1402	-.1456	-.1438	-.1537
	0.51		-.1537	-.1537	-.1420	-.1328	-.1402	-.1438	-.1438	-.1537
	0.73		-.1537		-.1420		-.1402		-.1420	
Nozzle 3	0.09		-.1537	-.1557	-.1438		-.1438		-.1420	-.1557
	0.30		-.1557	-.1557	-.1438		-.1438		-.1402	-.1557
	0.51		-.1557		-.1456		-.1420		-.1420	
	0.73		-.1537				-.1365			
Nozzle 6	0.09		-.1397				-.1397		-.1479	
	0.30		-.1459				-.1418		-.1479	
	0.51		-.1459				-.1418		-.1459	
	0.73								-.1459	
Shroud	0.13									.3488
	0.41									.3692
	0.62								-.1459	.1525
	0.81								-.1560	
	1.00								-.1683	.1484
Heat Shield		0.68								-.1459
		0.79								-.1459
		0.91								-.1459
		1.13	-.1459							
		1.25	-.1459							
		1.38	-.1459							
Star		0.00	.0973							
		0.12				-.0007				-.0231
		0.23				-.0703				-.0682

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1393	-.1450	-.1235	-.1208	-.1261	-.1288	-.1314	-.1506
	0.30		-.1506	-.1506	-.1261	-.1288	-.1288	-.1314	-.1288	-.1506
	0.51		-.1506	-.1506	-.1288	-.1261	-.1314	-.1288	-.1314	-.1506
	0.73		-.1506		-.1261		-.1288		-.1288	
Nozzle 3	0.09		-.1506	-.1506	-.1314		-.1261		-.1261	-.1506
	0.30		-.1506	-.1506	-.1288		-.1288		-.1261	-.1506
	0.51		-.1506		-.1314		-.1261		-.1314	
	0.73		-.1506				-.1288			
Nozzle 6	0.09		-.1350				-.1410		-.1410	
	0.30		-.1410				-.1440		-.1440	
	0.51		-.1440				-.1440		-.1410	
	0.73								-.1440	
Shroud	0.13									.3220
	0.41									.3280
	0.62								-.1056	.1364
	0.81								-.1115	
	1.00								-.1026	.0861
Heat Shield		0.68								-.1410
		0.79								-.1440
		0.91								-.1440
		1.13	-.1440							
		1.25	-.1440							
		1.38	-.1440							
Star		0.00	-.1115							
		0.12				-.1145				-.1115
		0.23				-.1205				-.1115

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1423	-.1506	-.1311	-.1205	-.1284	-.1311	-.1337	-.1506
	0.30		-.1506	-.1506	-.1284	-.1311	-.1284	-.1311	-.1311	-.1506
	0.51		-.1506	-.1506	-.1311	-.1284	-.1311	-.1284	-.1311	-.1506
	0.73		-.1506		-.1284		-.1311		-.1311	
Nozzle 3	0.09		-.1506	-.1506	-.1311		-.1258		-.1311	-.1506
	0.30		-.1506	-.1506	-.1311		-.1311		-.1258	-.1506
	0.51		-.1506		-.1311		-.1284		-.1311	
	0.73		-.1536				-.1284			
Nozzle 6	0.09		-.1321				-.1410		-.1410	
	0.30		-.1440				-.1440		-.1440	
	0.51		-.1410				-.1440		-.1440	
	0.73								-.1440	
Shroud	0.13									.3363
	0.41									.3568
	0.62								-.1086	.1506
	0.81								-.1115	
	1.00								-.1086	.1036
Heat Shield		0.68								-.1410
		0.79								-.1410
		0.91								-.1410
		1.13	-.1440							
		1.25	-.1440							
		1.38	-.1440							
Star		0.00	-.1205							
		0.12				-.1205				-.1145
		0.23				-.1264				-.1175

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1395	-.1510	-.1339	-.1339	-.1339	-.1365	-.1391	-.1510
	0.30		-.1510	-.1510	-.1339	-.1365	-.1365	-.1391	-.1365	-.1510
	0.51		-.1510	-.1510	-.1365	-.1339	-.1391	-.1365	-.1391	-.1510
	0.73		-.1510		-.1365		-.1391		-.1339	
Nozzle 3	0.09		-.1510	-.1510	-.1365		-.1260		-.1391	-.1510
	0.30		-.1510	-.1510	-.1365		-.1391		-.1339	-.1510
	0.51		-.1510		-.1365		-.1339		-.1365	
	0.73		-.1510				-.1312			
Nozzle 6	0.09		-.1322				-.1441		-.1441	
	0.30		-.1441				-.1441		-.1441	
	0.51		-.1441				-.1441		-.1441	
	0.73								-.1471	
Shroud	0.13									.2902
	0.41									.3139
	0.62								-.1147	.1260
	0.81								-.1177	
	1.00								-.1147	.0996
Heat Shield		0.68								-.1441
		0.79								-.1441
		0.91								-.1471
		1.13	-.1471							
		1.25	-.1441							
		1.38	-.1471							
Star		0.00	-.1293							
		0.12				-.1352				-.1293
		0.23				-.1441				-.1293

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1451	-.1510	-.1391	-.1391	-.1391	-.1391	-.1444	-.1510
	0.30		-.1537	-.1537	-.1391	-.1391	-.1365	-.1418	-.1391	-.1537
	0.51		-.1537	-.1537	-.1391	-.1339	-.1418	-.1391	-.1418	-.1537
	0.73		-.1537		-.1391		-.1418		-.1391	
Nozzle 3	0.09		-.1537	-.1537	-.1444		-.1339		-.1444	-.1537
	0.30		-.1537	-.1537	-.1391		-.1391		-.1391	-.1537
	0.51		-.1537		-.1444		-.1365		-.1391	
	0.73		-.1537				-.1365			
Nozzle 6	0.09		-.1352				-.1441		-.1441	
	0.30		-.1441				-.1441		-.1441	
	0.51		-.1441				-.1471		-.1500	
	0.73								-.1500	
Shroud	0.13									.3248
	0.41									.3218
	0.62								-.1236	.1431
	0.81								-.1296	
	1.00								-.1266	.1108
Heat Shield		0.68								-.1471
		0.79								-.1471
		0.91								-.1500
		1.13	-.1500							
		1.25	-.1500							
		1.38	-.1500							
Star		0.00	-.1441							
		0.12				-.1441				-.1441
		0.23				-.1471				-.1411

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 20.4$										
Nozzle 2	0.09		-.0619	-.0675	-.0717	-.0613	-.0769	-.0769	-.0743	-.0675
	0.30		-.0675	-.0675	-.0743	-.0665	-.0717	-.0743	-.0717	-.0675
	0.51		-.0675	-.0675	-.0691	-.0613	-.0691	-.0691	-.0717	-.0675
	0.73		-.0675		-.0665		-.0691		-.0665	
Nozzle 3	0.09		-.0675	-.0675	-.0691		-.0717		-.0717	-.0675
	0.30		-.0675	-.0675	-.0691		-.0691		-.0691	-.0675
	0.51		-.0675		-.0691		-.0639		-.0665	
	0.73		-.0675				-.0639			
Nozzle 6	0.09		-.0580				-.0580		-.0580	
	0.30		-.0580				-.0580		-.0610	
	0.51		-.0580				-.0580		-.0580	
	0.73								-.0580	
Shroud	0.13									.3433
	0.41									.3492
	0.62								-.0492	.1588
	0.81								-.0580	
	1.00								-.0694	.1066
Heat Shield		0.68								-.0408
		0.79								-.0434
		0.91								-.0434
		1.13	-.0463							
		1.25	-.0463							
		1.38	-.0463							
Star		0.00	.3407							
		0.12				.2018				.1672
		0.23				.0952				.1037

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 20.5$										
Nozzle 2	0.09		-.0667	-.0693	-.0709	-.0631	-.0736	-.0709	-.0709	-.0693
	0.30		-.0693	-.0693	-.0709	-.0683	-.0709	-.0736	-.0683	-.0693
	0.51		-.0693	-.0723	-.0683	-.0631	-.0683	-.0683	-.0709	-.0693
	0.73		-.0693		-.0657		-.0683		-.0683	
Nozzle 3	0.09		-.0693	-.0693	-.0709		-.0709		-.0736	-.0749
	0.30		-.0749	-.0749	-.0709		-.0736		-.0709	-.0749
	0.51		-.0749		-.0709		-.0683		-.0683	
	0.73		-.0749				-.0657			
Nozzle 6	0.09		-.0650				-.0621		-.0650	
	0.30		-.0650				-.0680		-.0680	
	0.51		-.0680				-.0680		-.0680	
	0.73								-.0680	
Shroud	0.13									.3449
	0.41									.3623
	0.62								-.0709	.1514
	0.81								-.0798	
	1.00								-.0913	.1107
Heat Shield		0.68								-.0621
		0.79								-.0650
		0.91								-.0650
		1.13	-.0650							
		1.25	-.0650							
		1.38	-.0650							
Star		0.00	.3360							
		0.12				.1836				.1544
		0.23				.0811				.0900

TABLE III. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 20.6$										
Nozzle 2	0.09		-.0664	-.0749	-.0709	-.0683	-.0788	-.0762	-.0762	-.0749
	0.30		-.0749	-.0749	-.0736	-.0736	-.0736	-.0788	-.0762	-.0749
	0.51		-.0749	-.0749	-.0762	-.0709	-.0736	-.0736	-.0762	-.0749
	0.73		-.0749		-.0709		-.0736		-.0447	
Nozzle 3	0.09		-.0778	-.0778	-.0762		-.0762		-.0788	-.0778
	0.30		-.0778	-.0778	-.0762		-.0762		-.0762	-.0778
	0.51		-.0778		-.0762		-.0762		-.0762	
	0.73		-.0778				-.0736			
Nozzle 6	0.09		-.0680				-.0709		-.0709	
	0.30		-.0739				-.0739		-.0769	
	0.51		-.0769				-.0739		-.0769	
	0.73								-.0769	
Shroud	0.13									.2956
	0.41									.2956
	0.62								-.0795	.1225
	0.81								-.0824	
	1.00								-.1002	.0992
Heat Shield		0.68								-.0680
		0.79								-.0709
		0.91								-.0709
		1.13	-.0709							
		1.25	-.0709							
		1.38	-.0709							
Star		0.00	.3278							
		0.12				.1813				.1518
		0.23				.0785				.0815

TABLE III. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 20.5$										
Nozzle 2	0.09		-.0749	-.0805	-.0657	-.0631	-.0683	-.0709	-.0709	-.0805
	0.30		-.0805	-.0805	-.0709	-.0683	-.0683	-.0709	-.0709	-.0805
	0.51		-.0805	-.0805	-.0709	-.0657	-.0683	-.0683	-.0683	-.0805
	0.73		-.0805		-.0657		-.0657		-.0447	
Nozzle 3	0.09		-.0805	-.0805	-.0657		-.0683		-.0683	-.0805
	0.30		-.0805	-.0805	-.0683		-.0683		-.0683	-.0805
	0.51		-.0805		-.0683		-.0683		-.0683	
	0.73		-.0805				-.0657			
Nozzle 6	0.09		-.0739				-.0769		-.0769	
	0.30		-.0769				-.0769		-.0769	
	0.51		-.0769				-.0769		-.0769	
	0.73								-.0769	
Shroud	0.13									.3249
	0.41									.3249
	0.62								-.0739	.1491
	0.81								-.0795	
	1.00								-.0854	.1166
Heat Shield		0.68								-.0680
		0.79								-.0709
		0.91								-.0680
		1.13	-.0680							
		1.25	-.0680							
		1.38	-.0709							
Star		0.00	.3308							
		0.12				.1843				.1577
		0.23				.0785				.0844

TABLE IV

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = 0^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2700	-.2832	-.2782	-.2733	-.2795	-.2832	-.2745	-.1598
	0.30		-.2886	-.2899	-.2820	-.2708	-.2820	-.2857	-.2882	-.2607
	0.51		-.2859	-.2886	-.2832	-.2720	-.2820	-.2832	-.2832	-.2820
	0.73		-.2846		-.2820		-.2795		-.2832	
Nozzle 3	0.09		-.2767	-.1425	-.2671		-.2807		-.2795	-.2832
	0.30		-.2925	-.2528	-.2921		-.2820		-.2820	-.2899
	0.51		-.2886		-.2882		-.2832		-.2832	
	0.73		-.2872				-.2820			
Nozzle 6	0.09		-.2893				-.2879		-.2824	
	0.30		-.2810				-.2824		-.2824	
	0.51		-.2824				-.2824		-.2824	
	0.73								-.2824	
Shroud	0.13									
	0.41									
	0.62								-.3237	.2329
	0.81								-.3582	
	1.00								-.3307	.2866
Heat Shield		0.68								-.2768
		0.79								-.2782
		0.91								-.2796
		1.13	-.2796							
		1.25	-.2796							
		1.38	-.2796							
Star		0.00	-.2205							
		0.12				-.2231				-.2205
		0.23				-.2273				-.2217

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2580	-.2843	-.2796	-.2772	-.2846	-.2885	-.2747	-.1522
	0.30		-.2883	-.2909	-.2846	-.2747	-.2860	-.2885	-.2897	-.2618
	0.51		-.2857	-.2883	-.2860	-.2747	-.2860	-.2860	-.2872	-.2830
	0.73		-.2843		-.2846		-.2834		-.2860	
Nozzle 3	0.09		-.2671	-.1455	-.2635		-.2846		-.2821	-.2843
	0.30		-.2909	-.2580	-.2947		-.2860		-.2846	-.2909
	0.51		-.2883		-.2897		-.2860		-.2860	
	0.73		-.2871				-.2846			
Nozzle 6	0.09		-.2866				-.2880		-.2826	
	0.30		-.2826				-.2826		-.2838	
	0.51		-.2826				-.2838		-.2826	
	0.73								-.2826	
Shroud	0.13									
	0.41									
	0.62								-.3211	.2120
	0.81								-.3501	
	1.00								-.3349	.2671
Heat Shield		0.68								-.2798
		0.79								-.2812
		0.91								-.2826
		1.13	-.2826							
		1.25	-.2826							
		1.38	-.2812							
Star		0.00	-.2329							
		0.12				-.2343				-.2288
		0.23				-.2398				-.2288

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2593	-.2779	-.2802	-.2777	-.2851	-.2876	-.2689	-.1576
	0.30		-.2857	-.2871	-.2839	-.2751	-.2864	-.2913	-.2888	-.2554
	0.51		-.2817	-.2844	-.2851	-.2763	-.2864	-.2864	-.2864	-.2791
	0.73		-.2805		-.2839		-.2839		-.2851	
Nozzle 3	0.09		-.2659	-.1430	-.2676		-.2864		-.2827	-.2805
	0.30		-.2910	-.2461	-.2926		-.2864		-.2839	-.2871
	0.51		-.2857		-.2888		-.2864		-.2851	
	0.73		-.2844				-.2851			
Nozzle 6	0.09		-.2833				-.2833		-.2805	
	0.30		-.2805				-.2805		-.2833	
	0.51		-.2819				-.2819		-.2819	
	0.73								-.2833	
Shroud	0.13									
	0.41									
	0.62								-.3150	.1834
	0.81								-.3344	
	1.00								-.3371	.2220
Heat Shield		0.68								-.2805
		0.79								-.2805
		0.91								-.2805
		1.13	-.2805							
		1.25	-.2805							
		1.38	-.2805							
Star		0.00	-.2515							
		0.12				-.2529				-.2474
		0.23				-.2557				-.2460

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) M_∞ = 1.60 - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2489	-.2912	-.2887	-.2875	-.2998	-.3011	-.2986	-.1750
	0.30		-.2964	-.2978	-.2974	-.2899	-.2986	-.2986	-.3011	-.2766
	0.51		-.2938	-.2964	-.2974	-.2924	-.2986	-.2974	-.2986	-.2926
	0.73		-.2938		-.2949		-.2974		-.2961	
Nozzle 3	0.09		-.2635	-.1552	-.2924		-.2998		-.2924	-.2926
	0.30		-.2991	-.2766	-.3035		-.2986		-.2961	-.2978
	0.51		-.2964		-.2998		-.2986		-.2974	
	0.73		-.2964				-.2974			
Nozzle 6	0.09		-.2890				-.2944		-.2599	
	0.30		-.2890				-.2944		-.2932	
	0.51		-.2944				-.3014		-.3056	
	0.73								-.3028	
Shroud	0.13									
	0.41									
	0.62								-.3097	.1898
	0.81								-.3303	
	1.00								-.3455	.2036
Heat Shield		0.68								-.2918
		0.79								-.2932
		0.91								-.2944
		1.13	-.2932							
		1.25	-.2932							
		1.38	-.2932							
Star		0.00	-.2779							
		0.12				-.2793				-.2766
		0.23				-.2806				-.2752

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.6$										
Nozzle 2	0.09		-.2710	-.3039	-.3008	-.3033	-.3058	-.3058	-.2736	-.1354
	0.30		-.3027	-.3092	-.3107	-.2996	-.3082	-.3107	-.3058	-.2500
	0.51		-.3065	-.3106	-.3095	-.2872	-.3070	-.3107	-.3058	-.3013
	0.73		-.3039		-.3045		-.3033		-.3058	
Nozzle 3	0.09		-.2724	-.1051	-.2637		-.3070		-.2959	-.2999
	0.30		-.3079	-.2288	-.3119		-.3132		-.3070	-.3079
	0.51		-.3106		-.3169		-.3144		-.3095	
	0.73		-.3092				-.3132			
Nozzle 6	0.09		-.2758				-.2867		-.3073	
	0.30		-.2798				-.2854		-.3017	
	0.51		-.2716				-.2744		-.3031	
	0.73								-.2922	
Shroud	0.13									
	0.41									
	0.62								-.3155	.2368
	0.81								-.3484	
	1.00								-.3223	.2915
Heat Shield		0.68								-.2676
		0.79								-.2676
		0.91								-.2634
		1.13	-.2798							
		1.25	-.2730							
		1.38	-.2702							
Star		0.00	-.1853							
		0.12				-.2251				-.2251
		0.23				-.2496				-.2470

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 3.6$										
Nozzle 2	0.09		-.2569	-.3180	-.3065	-.3065	-.3115	-.3140	-.2768	-.1178
	0.30		-.3075	-.3220	-.3152	-.3065	-.3140	-.3164	-.3127	-.2476
	0.51		-.3166	-.3206	-.3140	-.2941	-.3140	-.3164	-.3127	-.3113
	0.73		-.3154		-.3102		-.3127		-.3127	
Nozzle 3	0.09		-.2624	-.1085	-.2569		-.3065		-.3065	-.3140
	0.30		-.3127	-.2385	-.3078		-.3152		-.3115	-.3166
	0.51		-.3154		-.3164		-.3164		-.3127	
	0.73		-.3154				-.3115			
Nozzle 6	0.09		-.2858				-.2941		-.3135	
	0.30		-.2913				-.2941		-.3093	
	0.51		-.2844				-.2844		-.3147	
	0.73								-.3079	
Shroud	0.13									
	0.41									
	0.62								-.3217	.2145
	0.81								-.3479	
	1.00								-.3355	.2684
Heat Shield		0.68								-.2858
		0.79								-.2844
		0.91								-.2789
		1.13	-.2996							
		1.25	-.2941							
		1.38	-.2899							
Star		0.00	-.1959							
		0.12				-.2332				-.2402
		0.23				-.2610				-.2624

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.6$										
Nozzle 2	0.09		-.2572	-.3169	-.3143	-.3106	-.3106	-.3143	-.2769	-.1340
	0.30		-.3102	-.3183	-.3192	-.3081	-.3155	-.3180	-.3118	-.2453
	0.51		-.3129	-.3169	-.3180	-.2944	-.3118	-.3205	-.3130	-.3102
	0.73		-.3116		-.3192		-.3056		-.3143	
Nozzle 3	0.09		-.2653	-.1089	-.2633		-.3106		-.3143	-.3195
	0.30		-.3183	-.2307	-.3118		-.3155		-.3155	-.3183
	0.51		-.3157		-.3155		-.3155		-.3168	
	0.73		-.3157				-.3118			
Nozzle 6	0.09		-.2889				-.2930		-.3082	
	0.30		-.2916				-.2944		-.3082	
	0.51		-.2889				-.2847		-.3123	
	0.73								-.3026	
Shroud	0.13									
	0.41									
	0.62								-.3123	.1833
	0.81								-.3372	
	1.00								-.3386	.2205
Heat Shield		0.68								-.2971
		0.79								-.3026
		0.91								-.2957
		1.13	-.3054							
		1.25	-.3040							
		1.38	-.3026							
Star		0.00	-.1991							
		0.12				-.2405				-.2433
		0.23				-.2667				-.2667

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.6$										
Nozzle 2	0.09		-.2459	-.3150	-.3166	-.3154	-.3191	-.3191	-.3065	-.1491
	0.30		-.3150	-.3163	-.3216	-.3040	-.3178	-.3191	-.3178	-.2712
	0.51		-.3163	-.3177	-.3216	-.2966	-.3141	-.3203	-.3166	-.3177
	0.73		-.3177		-.3203		-.3127		-.3203	
Nozzle 3	0.09		-.2526	-.1172	-.2916		-.3216		-.3203	-.3191
	0.30		-.3243	-.2672	-.3228		-.3216		-.3216	-.3191
	0.51		-.3203		-.3216		-.3216		-.3228	
	0.73		-.3203				-.3178			
Nozzle 6	0.09		-.2996				-.3023		-.3079	
	0.30		-.3009				-.3051		-.3147	
	0.51		-.3065				-.2982		-.3133	
	0.73								-.3106	
Shroud	0.13									
	0.41									
	0.62								-.3106	.1843
	0.81								-.3341	
	1.00								-.3479	.1953
Heat Shield		0.68								-.3175
		0.79								-.3203
		0.91								-.3231
		1.13	-.3217							
		1.25	-.3217							
		1.38	-.3203							
Star		0.00	-.2070							
		0.12				-.2568				-.2456
		0.23				-.2802				-.2734

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1684	-.2164	-.2086	-.2086	-.2101	-.2144	-.1697	-.0217
	0.30		-.2102	-.2180	-.2129	-.2057	-.2129	-.2158	-.2144	-.1205
	0.51		-.2164	-.2195	-.2144	-.2057	-.2144	-.2144	-.2144	-.2164
	0.73		-.2180		-.2129		-.2129		-.2144	
Nozzle 3	0.09		-.1778	-.0109	-.1523		-.2101		-.2101	-.2164
	0.30		-.2180	-.1143	-.2115		-.2129		-.2129	-.2195
	0.51		-.2195		-.2158		-.2144		-.2144	
	0.73		-.2180				-.2144			
Nozzle 6	0.09		-.2202				-.2218		-.2202	
	0.30		-.2186				-.2186		-.2186	
	0.51		-.2169				-.2169		-.2169	
	0.73								-.2169	
Shroud	0.13									
	0.41									
	0.62								-.2202	.1939
	0.81								-.2363	
	1.00								-.2057	.1939
Heat Shield		0.68								-.2137
		0.79								-.2137
		0.91								-.2137
		1.13	-.2137							
		1.25	-.2137							
		1.38	-.2137							
Star		0.00	-.1637							
		0.12				-.1670				-.1637
		0.23				-.1686				-.1637

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1579	-.2181	-.2087	-.2087	-.2116	-.2145	-.1611	-.0325
	0.30		-.2056	-.2212	-.2145	-.2087	-.2145	-.2174	-.2116	-.1409
	0.51		-.2181	-.2212	-.2145	-.2072	-.2145	-.2159	-.2159	-.2181
	0.73		-.2195		-.2130		-.2130		-.2145	
Nozzle 3	0.09		-.1716	-.0233	-.1410		-.2087		-.2116	-.2181
	0.30		-.2195	-.1362	-.2014		-.2145		-.2145	-.2212
	0.51		-.2212		-.2159		-.2159		-.2159	
	0.73		-.2212				-.2159			
Nozzle 6	0.09		-.2199				-.2248		-.2215	
	0.30		-.2183				-.2183		-.2183	
	0.51		-.2183				-.2183		-.2183	
	0.73								-.2166	
Shroud	0.13									
	0.41									
	0.62								-.2215	.1886
	0.81								-.2329	
	1.00								-.2118	.1854
Heat Shield		0.68								-.2166
		0.79								-.2166
		0.91								-.2166
		1.13	-.2166							
		1.25	-.2166							
		1.38	-.2166							
Star		0.00	-.1747							
		0.12				-.1763				-.1731
		0.23				-.1796				-.1714

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1604	-.2177	-.2137	-.2166	-.2181	-.2210	-.1788	-.0597
	0.30		-.2085	-.2208	-.2195	-.2166	-.2195	-.2224	-.2195	-.1434
	0.51		-.2177	-.2208	-.2210	-.2137	-.2210	-.2210	-.2210	-.2177
	0.73		-.2193		-.2195		-.2195		-.2210	
Nozzle 3	0.09		-.1682	-.0349	-.1629		-.2166		-.2181	-.2177
	0.30		-.2177	-.1387	-.2181		-.2195		-.2195	-.2208
	0.51		-.2208		-.2224		-.2210		-.2210	
	0.73		-.2208				-.2210			
Nozzle 6	0.09		-.2197				-.2230		-.2197	
	0.30		-.2181				-.2197		-.2197	
	0.51		-.2197				-.2197		-.2181	
	0.73								-.2181	
Shroud	0.13									
	0.41									
	0.62								-.2230	.1488
	0.81								-.2360	
	1.00								-.2197	.1391
Heat Shield		0.68								-.2181
		0.79								-.2181
		0.91								-.2197
		1.13	-.2181							
		1.25	-.2181							
		1.38	-.2197							
Star		0.00	-.1810							
		0.12				-.1857				-.1794
		0.23				-.1890				-.1794

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1281	-.2334	-.2242	-.2271	-.2285	-.2314	-.2285	-.0677
	0.30		-.2101	-.2379	-.2300	-.2271	-.2300	-.2357	-.2372	-.1760
	0.51		-.2334	-.2379	-.2343	-.2256	-.2314	-.2314	-.2314	-.2334
	0.73		-.2365		-.2300		-.2300		-.2314	
Nozzle 3	0.09		-.1435	-.0445	-.2155		-.2285		-.2271	-.2348
	0.30		-.2271	-.1744	-.2357		-.2328		-.2300	-.2379
	0.51		-.2379		-.2357		-.2343		-.2328	
	0.73		-.2379				-.2328			
Nozzle 6	0.09		-.2357				-.2390		-.2357	
	0.30		-.2357				-.2374		-.2357	
	0.51		-.2357				-.2374		-.2374	
	0.73								-.2357	
Shroud	0.13									
	0.41									
	0.62								-.2341	.1496
	0.81								-.2437	
	1.00								-.2341	.1400
Heat Shield		0.68								-.2341
		0.79								-.2341
		0.91								-.2357
		1.13	-.2357							
		1.25	-.2357							
		1.38	-.2357							
Star		0.00	-.2034							
		0.12				-.2066				-.2017
		0.23				-.2082				-.2001

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.6$										
Nozzle 2	0.09		-.1569	-.1818	-.1870	-.1739	-.1870	-.1856	-.1579	-.0591
	0.30		-.1818	-.1848	-.1870	-.1783	-.1870	-.1870	-.1856	-.1383
	0.51		-.1832	-.1863	-.1856	-.1710	-.1841	-.1856	-.1856	-.1818
	0.73		-.1832		-.1812		-.1798		-.1827	
Nozzle 3	0.09		-.1630	-.0513	-.1521		-.1870		-.1841	-.1818
	0.30		-.1848	-.1289	-.1856		-.1870		-.1870	-.1832
	0.51		-.1832		-.1856		-.1856		-.1841	
	0.73		-.1832				-.1856			
Nozzle 6	0.09		-.1569				-.1665		-.1859	
	0.30		-.1665				-.1681		-.1827	
	0.51		-.1632				-.1665		-.1794	
	0.73								-.1761	
Shroud	0.13									
	0.41									
	0.62								-.1876	.1987
	0.81								-.2036	
	1.00								-.2005	.1987
Heat Shield		0.68								-.1585
		0.79								-.1585
		0.91								-.1519
		1.13	-.1665							
		1.25	-.1665							
		1.38	-.1648							
Star		0.00	.0016							
		0.12				-.0792				-.0856
		0.23				-.1294				-.1245

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.6$										
Nozzle 2	0.09		-.1514	-.1885	-.1903	-.1773	-.1903	-.1860	-.1556	-.0741
	0.30		-.1855	-.1900	-.1903	-.1802	-.1874	-.1874	-.1860	-.1529
	0.51		-.1885	-.1885	-.1889	-.1730	-.1860	-.1874	-.1860	-.1885
	0.73		-.1885		-.1860		-.1831		-.1860	
Nozzle 3	0.09		-.1668	-.0648	-.1411		-.1903		-.1874	-.1885
	0.30		-.1916	-.1467	-.1845		-.1903		-.1903	-.1900
	0.51		-.1900		-.1903		-.1889		-.1889	
	0.73		-.1900				-.1903			
Nozzle 6	0.09		-.1605				-.1686		-.1943	
	0.30		-.1717				-.1701		-.1831	
	0.51		-.1701				-.1701		-.1847	
	0.73								-.1782	
Shroud	0.13									
	0.41									
	0.62								-.1911	.1909
	0.81								-.2039	
	1.00								-.2039	.1878
Heat Shield		0.68								-.1686
		0.79								-.1686
		0.91								-.1637
		1.13	-.1749							
		1.25	-.1733							
		1.38	-.1717							
Star		0.00	-.0058							
		0.12				-.0864				-.0944
		0.23				-.1364				-.1315

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.6$										
Nozzle 2	0.09		-.1574	-.1916	-.1883	-.1782	-.1883	-.1854	-.1594	-.0940
	0.30		-.1900	-.1930	-.1898	-.1825	-.1869	-.1869	-.1869	-.1544
	0.51		-.1900	-.1930	-.1898	-.1739	-.1840	-.1854	-.1854	-.1900
	0.73		-.1916		-.1883		-.1811		-.1854	
Nozzle 3	0.09		-.1668	-.0770	-.1536		-.1898		-.1883	-.1916
	0.30		-.1930	-.1498	-.1869		-.1869		-.1883	-.1930
	0.51		-.1930		-.1883		-.1854		-.1883	
	0.73		-.1930				-.1883			
Nozzle 6	0.09		-.1663				-.1712		-.1938	
	0.30		-.1760				-.1744		-.1874	
	0.51		-.1728				-.1712		-.1858	
	0.73								-.1825	
Shroud	0.13									
	0.41									
	0.62								-.1954	.1522
	0.81								-.2051	
	1.00								-.2149	.1410
Heat Shield		0.68								-.1728
		0.79								-.1744
		0.91								-.1695
		1.13	-.1809							
		1.25	-.1793							
		1.38	-.1777							
Star		0.00	-.0047							
		0.12				-.0904				-.0953
		0.23				-.1421				-.1339

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.6$										
Nozzle 2	0.09		-.1513	-.2007	-.1995	-.1908	-.1980	-.1922	-.1951	-.1204
	0.30		-.1962	-.2007	-.1995	-.1951	-.1980	-.1980	-.1966	-.1854
	0.51		-.1977	-.2007	-.1995	-.1850	-.1951	-.1966	-.1966	-.1993
	0.73		-.1993		-.2009		-.1893		-.1966	
Nozzle 3	0.09		-.1636	-.1064	-.1850		-.1980		-.1980	-.2024
	0.30		-.2024	-.1854	-.1995		-.1995		-.1995	-.2024
	0.51		-.2024		-.1995		-.1966		-.1995	
	0.73		-.2024				-.1995			
Nozzle 6	0.09		-.1712				-.1808		-.2018	
	0.30		-.1808				-.1825		-.1971	
	0.51		-.1825				-.1808		-.1955	
	0.73								-.1922	
Shroud	0.13									
	0.41									
	0.62								-.2035	.1473
	0.81								-.2165	
	1.00								-.2310	.1394
Heat Shield		0.68								-.1841
		0.79								-.1874
		0.91								-.1808
		1.13	-.1955							
		1.25	-.1939							
		1.38	-.1939							
Star		0.00	-.0062							
		0.12				-.0999				-.0920
		0.23				-.1454				-.1388

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = 0^{o}$; q_∞ - 435; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0944	-.1752	-.1614	-.1596	-.1651	-.1706	-.1045	.0200
	0.30		-.1495	-.1771	-.1669	-.1614	-.1669	-.1706	-.1559	-.0528
	0.51		-.1732	-.1771	-.1688	-.1651	-.1688	-.1688	-.1706	-.1732
	0.73		-.1752		-.1688		-.1688		-.1669	
Nozzle 3	0.09		-.1100	.0239	-.0840		-.1614		-.1633	-.1732
	0.30		-.1653	-.0528	-.1412		-.1669		-.1669	-.1752
	0.51		-.1771		-.1669		-.1669		-.1669	
	0.73		-.1771				-.1651			
Nozzle 6	0.09		-.1702				-.1741		-.1720	
	0.30		-.1720				-.1720		-.1720	
	0.51		-.1720				-.1720		-.1720	
	0.73								-.1720	
Shroud	0.13									
	0.41									
	0.62								-.1578	.1582
	0.81								-.1598	
	1.00								-.1394	.1275
Heat Shield		0.68								-.1702
		0.79								-.1702
		0.91								-.1720
		1.13	-.1741							
		1.25	-.1741							
		1.38	-.1720							
Star		0.00	-.1291							
		0.12				-.1291				-.1291
		0.23				-.1311				-.1291

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0867	-.1714	-.1599	-.1599	-.1654	-.1654	-.0994	.0156
	0.30		-.1495	-.1753	-.1636	-.1599	-.1636	-.1673	-.1452	-.0750
	0.51		-.1714	-.1753	-.1654	-.1617	-.1654	-.1654	-.1654	-.1732
	0.73		-.1753		-.1636		-.1654		-.1636	
Nozzle 3	0.09		-.1063	.0196	-.0828		-.1599		-.1617	-.1714
	0.30		-.1654	-.0828	-.1360		-.1654		-.1636	-.1732
	0.51		-.1753		-.1654		-.1654		-.1673	
	0.73		-.1753				-.1636			
Nozzle 6	0.09		-.1721				-.1762		-.1762	
	0.30		-.1783				-.1783		-.1762	
	0.51		-.1762				-.1762		-.1762	
	0.73								-.1762	
Shroud	0.13									
	0.41									
	0.62								-.1578	.1558
	0.81								-.1599	
	1.00								-.1454	.1252
Heat Shield		0.68								-.1721
		0.79								-.1721
		0.91								-.1721
		1.13	-.1721							
		1.25	-.1721							
		1.38	-.1721							
Star		0.00	-.1353							
		0.12				-.1353				-.1353
		0.23				-.1394				-.1353

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; p_j/p_{∞} - 0.0										
Nozzle 2	0.09		-.0774	-.1734	-.1601	-.1582	-.1637	-.1656	-.1125	-.0009
	0.30		-.1382	-.1754	-.1637	-.1601	-.1637	-.1674	-.1582	-.0753
	0.51		-.1715	-.1754	-.1674	-.1619	-.1656	-.1656	-.1656	-.1754
	0.73		-.1754		-.1656		-.1656		-.1637	
Nozzle 3	0.09		-.0969	.0108	-.0997		-.1601		-.1601	-.1715
	0.30		-.1559	-.0891	-.1474		-.1637		-.1637	-.1754
	0.51		-.1754		-.1656		-.1637		-.1656	
	0.73		-.1754				-.1637			
Nozzle 6	0.09		-.1704				-.1725		-.1725	
	0.30		-.1745				-.1745		-.1745	
	0.51		-.1745				-.1745		-.1745	
	0.73								-.1745	
Shroud	0.13									
	0.41									
	0.62								-.1582	.1419
	0.81								-.1644	
	1.00								-.1500	.1132
Heat Shield		0.68								-.1725
		0.79								-.1745
		0.91								-.1745
		1.13	-.1766							
		1.25	-.1745							
		1.38	-.1745							
Star		0.00	-.1399							
		0.12				-.1419				-.1399
		0.23				-.1461				-.1399

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0441	-.1755	-.1709	-.1654	-.1746	-.1746	-.1601	-.0048
	0.30		-.1324	-.1813	-.1709	-.1654	-.1728	-.1764	-.1746	-.0931
	0.51		-.1813	-.1813	-.1746	-.1673	-.1728	-.1746	-.1746	-.1813
	0.73		-.1813		-.1728		-.1709		-.1709	
Nozzle 3	0.09		-.0636	.0108	-.1473		-.1673		-.1709	-.1774
	0.30		-.1558	-.0950	-.1673		-.1728		-.1728	-.1813
	0.51		-.1813		-.1728		-.1709		-.1746	
	0.73		-.1813				-.1709			
Nozzle 6	0.09		-.1785				-.1806		-.1785	
	0.30		-.1806				-.1785		-.1785	
	0.51		-.1806				-.1806		-.1785	
	0.73								-.1785	
Shroud	0.13									
	0.41									
	0.62								-.1746	.1480
	0.81								-.1785	
	1.00								-.1746	.1216
Heat Shield		0.68								-.1785
		0.79								-.1806
		0.91								-.1806
		1.13	-.1806							
		1.25	-.1806							
		1.38	-.1806							
Star		0.00	-.1542							
		0.12				-.1581				-.1542
		0.23				-.1581				-.1521

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 12.1$										
Nozzle 2	0.09		-.0971	-.1088	-.1090	-.0998	-.1072	-.1072	-.1035	-.0442
	0.30		-.1088	-.1108	-.1090	-.1017	-.1072	-.1090	-.1090	-.0950
	0.51		-.1088	-.1108	-.1072	-.0962	-.1035	-.1072	-.1090	-.1069
	0.73		-.1088		-.1072		-.0998		-.1072	
Nozzle 3	0.09		-.1069	-.0442	-.0962		-.1090		-.1072	-.1088
	0.30		-.1108	-.0932	-.1072		-.1090		-.1090	-.1127
	0.51		-.1127		-.1072		-.1072		-.1072	
	0.73		-.1127				-.1053			
Nozzle 6	0.09		-.0889				-.0909		-.1113	
	0.30		-.0971				-.0971		-.1092	
	0.51		-.0971				-.0971		-.1031	
	0.73								-.1010	
Shroud	0.13									
	0.41									
	0.62								-.1092	.1683
	0.81								-.1175	
	1.00								-.1296	.1335
Heat Shield		0.68								-.0889
		0.79								-.0889
		0.91								-.0868
		1.13	-.0992							
		1.25	-.0992							
		1.38	-.0971							
Star		0.00	.1866							
		0.12				.0561				.0355
		0.23				-.0256				-.0215

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 12.1$										
Nozzle 2	0.09		-.0956	-.1055	-.1123	-.1068	-.1123	-.1142	-.1050	-.0526
	0.30		-.1055	-.1073	-.1123	-.1050	-.1087	-.1142	-.1123	-.1034
	0.51		-.1055	-.1073	-.1123	-.1014	-.1050	-.1123	-.1123	-.1073
	0.73		-.1055		-.1123		-.1014		-.1123	
Nozzle 3	0.09		-.1055	-.0547	-.0977		-.1123		-.1123	-.1073
	0.30		-.1073	-.1016	-.1123		-.1123		-.1123	-.1094
	0.51		-.1094		-.1105		-.1087		-.1087	
	0.73		-.1094				-.1050			
Nozzle 6	0.09		-.0915				-.0936		-.1098	
	0.30		-.0995				-.0975		-.1036	
	0.51		-.0975				-.0936		-.1016	
	0.73								-.1016	
Shroud	0.13									
	0.41									
	0.62								-.1057	.1730
	0.81								-.1137	
	1.00								-.1320	.1364
Heat Shield		0.68								-.0936
		0.79								-.0954
		0.91								-.0936
		1.13	-.1016							
		1.25	-.0995							
		1.38	-.0995							
Star		0.00	.1872							
		0.12				.0570				.0407
		0.23				-.0243				-.0222

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 12.1$										
Nozzle 2	0.09		-.0934	-.1072	-.1175	-.1156	-.1138	-.1193	-.1175	-.0602
	0.30		-.1072	-.1072	-.1175	-.1118	-.1138	-.1175	-.1193	-.1053
	0.51		-.1072	-.1072	-.1175	-.1118	-.1118	-.1175	-.1175	-.1072
	0.73		-.1072		-.1175		-.1099		-.1175	
Nozzle 3	0.09		-.1014	-.0623	-.1138		-.1138		-.1175	-.1092
	0.30		-.1092	-.1072	-.1175		-.1138		-.1138	-.1092
	0.51		-.1092		-.1175		-.1118		-.1138	
	0.73		-.1092				-.1063			
Nozzle 6	0.09		-.0973				-.0973		-.1097	
	0.30		-.1014				-.0994		-.1076	
	0.51		-.1014				-.0994		-.1035	
	0.73								-.1014	
Shroud	0.13									
	0.41									
	0.62								-.1097	.1489
	0.81								-.1177	
	1.00								-.1402	.1225
Heat Shield		0.68								-.0994
		0.79								-.1014
		0.91								-.0994
		1.13	-.1056							
		1.25	-.1035							
		1.38	-.1035							
Star		0.00	.1876							
		0.12				.0552				.0389
		0.23				-.0282				-.0220

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 12.1$										
Nozzle 2	0.09		-.0914	-.1150	-.1145	-.1090	-.1072	-.1035	-.1072	-.0719
	0.30		-.1150	-.1150	-.1163	-.1090	-.1090	-.1108	-.1108	-.1150
	0.51		-.1150	-.1150	-.1163	-.1072	-.1072	-.1090	-.1108	-.1150
	0.73		-.1150		-.1145		-.1053		-.1108	
Nozzle 3	0.09		-.1012	-.0719	-.1072		-.1090		-.1163	-.1168
	0.30		-.1168	-.1150	-.1127		-.1090		-.1163	-.1168
	0.51		-.1168		-.1145		-.1072		-.1145	
	0.73		-.1168				-.1053			
Nozzle 6	0.09		-.1031				-.1113		-.1154	
	0.30		-.1113				-.1113		-.1154	
	0.51		-.1092				-.1092		-.1134	
	0.73								-.1134	
Shroud	0.13									
	0.41									
	0.62								-.1195	.1560
	0.81								-.1317	
	1.00								-.1440	.1273
Heat Shield		0.68								-.1051
		0.79								-.1072
		0.91								-.1051
		1.13	-.1134							
		1.25	-.1134							
		1.38	-.1134							
Star		0.00	.1866							
		0.12				.0520				.0355
		0.23				-.0318				-.0277

TABLE IV.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$							
Nozzle 2	0.09		-.0499	-.1340	-.1182	-.1182	-.1235	-.1235	-.0552	.0289
	0.30		-.1087	-.1340	-.1182	-.1182	-.1182	-.1235	-.0999	-.0273
	0.51		-.1314	-.1370	-.1182	-.1156	-.1182	-.1182	-.1182	-.1340
	0.73		-.1370		-.1156		-.1182		-.1130	
Nozzle 3	0.09		-.0696	.0345	-.0319		-.1077		-.1130	-.1314
	0.30		-.1284	-.0273	-.0867		-.1182		-.1156	-.1314
	0.51		-.1340		-.1182		-.1156		-.1182	
	0.73		-.1370				-.1104			
Nozzle 6	0.09		-.1324				-.1353		-.1353	
	0.30		-.1353				-.1353		-.1353	
	0.51		-.1353				-.1353		-.1353	
	0.73								-.1353	
Shroud	0.13									
	0.41									
	0.62								-.1120	.1251
	0.81								-.1120	
	1.00								-.0943	.0637
Heat Shield		0.68								-.1353
		0.79								-.1353
		0.91								-.1353
		1.13	-.1383							
		1.25	-.1324							
		1.38	-.1353							
Star		0.00	-.1061							
		0.12				-.1061				-.1061
		0.23				-.1061				-.1031

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0388	-.1314	-.1288	-.1209	-.1366	-.1314	-.0683	.0371
	0.30		-.1087	-.1340	-.1261	-.1288	-.1314	-.1340	-.1104	-.0526
	0.51		-.1314	-.1370	-.1314	-.1288	-.1340	-.1261	-.1314	-.1370
	0.73		-.1370		-.1261		-.1314		-.1261	
Nozzle 3	0.09		-.0641	.0371	-.0447		-.1209		-.1261	-.1314
	0.30		-.1284	-.0470	-.0999		-.1288		-.1235	-.1314
	0.51		-.1370		-.1314		-.1261		-.1288	
	0.73		-.1370				-.1209			
Nozzle 6	0.09		-.1268				-.1297		-.1297	
	0.30		-.1297				-.1297		-.1297	
	0.51		-.1297				-.1297		-.1297	
	0.73								-.1297	
Shroud	0.13									
	0.41									
	0.62								-.1035	.1445
	0.81								-.1064	
	1.00								-.0946	.0890
Heat Shield		0.68								-.1297
		0.79								-.1297
		0.91								-.1297
		1.13	-.1297							
		1.25	-.1297							
		1.38	-.1268							
Star		0.00	-.1005							
		0.12				-.1035				-.1005
		0.23				-.1150				-.1005

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0217	-.1284	-.1337	-.1258	-.1393	-.1337	-.0838	.0315
	0.30		-.0834	-.1284	-.1258	-.1311	-.1311	-.1366	-.1232	-.0217
	0.51		-.1258	-.1314	-.1366	-.1311	-.1366	-.1311	-.1366	-.1314
	0.73		-.1340		-.1311		-.1366		-.1311	
Nozzle 3	0.09		-.0358	.0483	-.0654		-.1284		-.1337	-.1258
	0.30		-.1061	-.0358	-.1179		-.1337		-.1284	-.1258
	0.51		-.1340		-.1366		-.1284		-.1311	
	0.73		-.1340				-.1258			
Nozzle 6	0.09		-.1324				-.1324		-.1324	
	0.30		-.1324				-.1324		-.1324	
	0.51		-.1324				-.1324		-.1353	
	0.73								-.1324	
Shroud	0.13									
	0.41									
	0.62								-.1238	.1160
	0.81								-.1268	
	1.00								-.1209	.0808
Heat Shield		0.68								-.1324
		0.79								-.1353
		0.91								-.1353
		1.13	-.1353							
		1.25	-.1353							
		1.38	-.1353							
Star		0.00	-.1238							
		0.12				-.1238				-.1179
		0.23				-.1238				-.1179

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0003	-.1284	-.1419	-.1314	-.1445	-.1419	-.1261	.0145
	0.30		-.0808	-.1314	-.1314	-.1366	-.1393	-.1445	-.1340	-.0388
	0.51		-.1314	-.1370	-.1393	-.1366	-.1419	-.1366	-.1419	-.1370
	0.73		-.1370		-.1340		-.1419		-.1366	
Nozzle 3	0.09		-.0164	.0256	-.1074		-.1366		-.1445	-.1340
	0.30		-.1061	-.0388	-.1261		-.1419		-.1340	-.1314
	0.51		-.1370		-.1419		-.1366		-.1393	
	0.73		-.1370				-.1314			
Nozzle 6	0.09		-.1297				-.1327		-.1327	
	0.30		-.1327				-.1327		-.1327	
	0.51		-.1327				-.1327		-.1327	
	0.73								-.1327	
Shroud	0.13									
	0.41									
	0.62								-.1268	.1389
	0.81								-.1297	
	1.00								-.1238	.0953
Heat Shield		0.68								-.1353
		0.79								-.1353
		0.91								-.1327
		1.13	-.1327							
		1.25	-.1327							
		1.38	-.1327							
Star		0.00	-.1268							
		0.12				-.1297				-.1297
		0.23				-.1297				-.1268

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 24.9$										
Nozzle 2	0.09		-.0388	-.0388	-.0466	-.0361	-.0466	-.0440	-.0493	-.0246
	0.30		-.0388	-.0388	-.0466	-.0440	-.0414	-.0440	-.0440	-.0388
	0.51		-.0388	-.0388	-.0466	-.0361	-.0466	-.0414	-.0440	-.0388
	0.73		-.0388		-.0414		-.0414		-.0414	
Nozzle 3	0.09		-.0414	-.0246	-.0466		-.0466		-.0466	-.0388
	0.30		-.0388	-.0388	-.0440		-.0440		-.0440	-.0388
	0.51		-.0388		-.0466		-.0414		-.0414	
	0.73		-.0388				-.0361			
Nozzle 6	0.09		-.0391				-.0420		-.0361	
	0.30		-.0391				-.0391		-.0391	
	0.51		-.0361				-.0391		-.0361	
	0.73								-.0302	
Shroud	0.13									
	0.41									
	0.62								-.0332	.1334
	0.81								-.0391	
	1.00								-.0535	.0778
Heat Shield		0.68								-.0273
		0.79								-.0273
		0.91								-.0273
		1.13	-.0243							
		1.25	-.0214							
		1.38	-.0243							
Star		0.00	.4579							
		0.12				.2621				.2329
		0.23				.1393				.1422

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 24.9$										
Nozzle 2	0.09		-.0470	-.0470	-.0368	-.0342	-.0420	-.0394	-.0447	-.0414
	0.30		-.0470	-.0470	-.0394	-.0342	-.0368	-.0368	-.0394	-.0470
	0.51		-.0470	-.0470	-.0394	-.0342	-.0368	-.0342	-.0368	-.0470
	0.73		-.0443		-.0342		-.0342		-.0368	
Nozzle 3	0.09		-.0470	-.0414	-.0420		-.0394		-.0368	-.0443
	0.30		-.0470	-.0470	-.0394		-.0342		-.0342	-.0470
	0.51		-.0443		-.0342		-.0342		-.0342	
	0.73		-.0443				-.0289			
Nozzle 6	0.09		-.0391				-.0450		-.0391	
	0.30		-.0391				-.0420		-.0420	
	0.51		-.0391				-.0391		-.0391	
	0.73								-.0332	
Shroud	0.13									
	0.41									
	0.62								-.0361	.1511
	0.81								-.0450	
	1.00								-.0506	.0926
Heat Shield		0.68								-.0273
		0.79								-.0273
		0.91								-.0273
		1.13	-.0243							
		1.25	-.0273							
		1.38	-.0273							
Star		0.00	.4579							
		0.12				.2621				.2358
		0.23				.1363				.1452

TABLE IV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 24.9$										
Nozzle 2	0.09		-.0441	-.0385	-.0388	-.0362	-.0415	-.0415	-.0494	-.0299
	0.30		-.0441	-.0441	-.0388	-.0388	-.0388	-.0415	-.0415	-.0411
	0.51		-.0411	-.0411	-.0388	-.0362	-.0388	-.0388	-.0415	-.0411
	0.73		-.0411		-.0362		-.0362		-.0388	
Nozzle 3	0.09		-.0467	-.0385	-.0441		-.0388		-.0388	-.0411
	0.30		-.0467	-.0441	-.0415		-.0388		-.0388	-.0441
	0.51		-.0441		-.0388		-.0362		-.0362	
	0.73		-.0441				-.0362			
Nozzle 6	0.09		-.0415				-.0474		-.0415	
	0.30		-.0385				-.0415		-.0415	
	0.51		-.0415				-.0415		-.0415	
	0.73								-.0385	
Shroud	0.13									
	0.41									
	0.62								-.0415	.1168
	0.81								-.0444	
	1.00								-.0504	.0875
Heat Shield		0.68								-.0326
		0.79								-.0326
		0.91								-.0326
		1.13	-.0326							
		1.25	-.0326							
		1.38	-.0326							
Star		0.00	.4568							
		0.12				.2574				.2310
		0.23				.1372				.1432

TABLE IV. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 304$; $p_j/p_\infty = 25.0$										
Nozzle 2	0.09		-.0467	-.0467	-.0464	-.0490	-.0573	-.0546	-.0599	-.0355
	0.30		-.0494	-.0494	-.0546	-.0490	-.0520	-.0546	-.0546	-.0494
	0.51		-.0494	-.0494	-.0520	-.0464	-.0490	-.0490	-.0520	-.0494
	0.73		-.0494		-.0438		-.0464		-.0464	
Nozzle 3	0.09		-.0494	-.0411	-.0573		-.0546		-.0520	-.0467
	0.30		-.0494	-.0494	-.0546		-.0520		-.0438	-.0494
	0.51		-.0494		-.0490		-.0490		-.0464	
	0.73		-.0494				-.0438			
Nozzle 6	0.09		-.0530				-.0619		-.0559	
	0.30		-.0530				-.0589		-.0559	
	0.51		-.0530				-.0589		-.0559	
	0.73								-.0530	
Shroud	0.13									
	0.41									
	0.62								-.0559	.1382
	0.81								-.0589	
	1.00								-.0589	.0941
Heat Shield		0.68								-.0382
		0.79								-.0382
		0.91								-.0441
		1.13	-.0411							
		1.25	-.0411							
		1.38	-.0441							
Star		0.00	.4525							
		0.12				.2527				.2291
		0.23				.1293				.1323

TABLE V

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0064	-.2551	-.2390	-.2086	-.2326	-.2706	-.0136	.1075
	0.30		.0175	-.2379	-.2275	-.2162	-.2250	-.2490	-.0048	.1459
	0.51		-.0367	-.2312	-.2288	-.2250	-.2288	-.2453	-.0680	.1380
	0.73		-.1570		-.2288		-.2302		-.1807	
	0.94		-.2288							
Nozzle 3	0.09		-.0076	.1247	.0118		-.2377		-.2351	-.2642
	0.30		.0029	.1471	.0155		-.2288		-.2275	-.2458
	0.51		-.0579		-.0212		-.2288		-.2288	
	0.73		-.1598				-.2302			
	0.94						-.2302			
Nozzle 6	0.09		-.2153				-.2153		-.2139	
	0.30		-.2139				-.2139		-.2139	
	0.51		-.2139				-.2139		-.2139	
	0.73		-.2139							
Star		0.00	-.1323							
		0.12				-.1337				-.1323
		0.23				-.1406				-.1364
$\alpha = 0^{\circ}$; $q_{\infty} = 651$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.0123	-.2812	-.2819	-.2384	-.2745	-.2855	-.0107	.1010
	0.30		.0166	-.2707	-.2582	-.2458	-.2607	-.2657	.0005	.1406
	0.51		-.0177	-.2654	-.2533	-.2495	-.2545	-.2633	-.0418	.1419
	0.73		-.1547		-.2508		-.2521		-.1724	
	0.94		-.2458							
Nozzle 3	0.09		-.0150	.1234	.0141		-.2831		-.2745	-.2997
	0.30		-.0018	.1458	.0204		-.2582		-.2594	-.2812
	0.51		-.0453		.0029		-.2545		-.2558	
	0.73		-.1626				-.2521			
	0.94						-.2495			
Nozzle 6	0.09		-.2238				-.2238		-.2389	
	0.30		-.2333				-.2361		-.2416	
	0.51		-.2403				-.2416		-.2444	
	0.73		-.2444							
Star		0.00	-.1853							
		0.12				-.2128				-.2128
		0.23				-.2333				-.2333

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) M_∞ = 1.60 - Continued

Location	x, in.	r, in.	C_p at ∅ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0082	-.2611	-.2548	-.2269	-.2459	-.2890	-.0362	.0903
	0.30		.0051	-.2439	-.2459	-.2333	-.2358	-.2762	-.0222	.1209
	0.51		-.0616	-.2451	-.2434	-.2358	-.2409	-.2686	-.0665	.1209
	0.73		-.1693		-.2409		-.2434		-.1727	
	0.94		-.2409							
Nozzle 3	0.09		-.0016	.1275	-.0008		-.2510		-.2498	-.2719
	0.30		-.0016	.1488	.0030		-.2422		-.2434	-.2545
	0.51		-.0788		-.0185		-.2434		-.2422	
	0.73		-.1786				-.2434			
	0.94						-.2434			
Nozzle 6	0.09		-.2288				-.2274		-.2302	
	0.30		-.2274				-.2274		-.2302	
	0.51		-.2288				-.2288		-.2302	
	0.73		-.2302							
Star		0.00	-.1719							
		0.12				-.1719				-.1691
		0.23				-.1775				-.1719
$\alpha = -2^\circ$; $q_\infty = 651$; $p_j/p_\infty = 34$										
Nozzle 2	0.09		-.0043	-.2740	-.2888	-.2518	-.2864	-.3062	-.0444	.0878
	0.30		.0115	-.2621	-.2692	-.2555	-.2692	-.2901	-.0321	.1207
	0.51		-.0490	-.2607	-.2641	-.2592	-.2629	-.2815	-.0716	.1193
	0.73		-.1726		-.2592		-.2617		-.1729	
	0.94		-.2568							
Nozzle 3	0.09		-.0017	.1233	-.0098		-.2901		-.2815	-.2936
	0.30		-.0003	.1457	-.0049		-.2716		-.2692	-.2726
	0.51		-.0740		-.0210		-.2667		-.2641	
	0.73		-.1858				-.2617			
	0.94						-.2580			
Nozzle 6	0.09		-.2282				-.2268		-.2420	
	0.30		-.2379				-.2379		-.2420	
	0.51		-.2420				-.2420		-.2448	
	0.73		-.2448							
Star		0.00	-.1843							
		0.12				-.2131				-.2118
		0.23				-.2351				-.2351

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0337	-.2576	-.2655	-.2428	-.2554	-.3008	-.1041	.0802
	0.30		.0337	-.2442	-.2580	-.2467	-.2479	-.2958	-.0802	.1069
	0.51		-.0527	-.2495	-.2529	-.2492	-.2517	-.2845	-.1017	.0842
	0.73		-.1764		-.2504		-.2554		-.1811	
	0.94		-.2517							
Nozzle 3	0.09		.0270	.1069	-.0600		-.2605		-.2605	-.2748
	0.30		.0112	.1188	-.0410		-.2504		-.2554	-.2576
	0.51		-.0846		-.0550		-.2529		-.2529	
	0.73		-.1910				-.2529			
	0.94						-.2541			
Nozzle 6	0.09		-.2395				-.2353		-.2437	
	0.30		-.2409				-.2395		-.2437	
	0.51		-.2409				-.2409		-.2437	
	0.73		-.2437							
Star		0.00	-.1951							
		0.12				-.1951				-.1937
		0.23				-.2005				-.1951
$\alpha = -4^{\circ}$; $q_{\infty} = 651$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		.0372	-.2624	-.2747	-.2412	-.2672	-.3080	-.0989	.0752
	0.30		.0358	-.2480	-.2598	-.2437	-.2549	-.2858	-.0792	.1015
	0.51		-.0534	-.2546	-.2512	-.2486	-.2500	-.2697	-.1027	.0766
	0.73		-.1863		-.2474		-.2474		-.1720	
	0.94		-.2474							
Nozzle 3	0.09		.0266	.1015	-.0458		-.2759		-.2672	-.2861
	0.30		.0109	.1159	-.0396		-.2537		-.2549	-.2664
	0.51		-.0877		-.0544		-.2512		-.2512	
	0.73		-.1981				-.2462			
	0.94						-.2462			
Nozzle 6	0.09		-.2337				-.2282		-.2448	
	0.30		-.2420				-.2392		-.2462	
	0.51		-.2434				-.2434		-.2488	
	0.73		-.2462							
Star		0.00	-.1884							
		0.12				-.2187				-.2145
		0.23				-.2406				-.2365

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.1027	-.2256	-.3119	-.2917	-.2830	-.3206	-.2000	.0575
	0.30		.1001	-.2457	-.3092	-.2880	-.2855	-.3181	-.2012	.0774
	0.51		.0096	-.2709	-.2942	-.2867	-.2867	-.2942	-.2402	.0482
	0.73		-.1591		-.2867		-.2867		-.2830	
	0.94		-.2766							
Nozzle 3	0.09		.1068	.1068	-.1585		-.2855		-.3119	-.2603
	0.30		.0841	.1120	-.1585		-.2842		-.3043	-.2723
	0.51		-.0249		-.1800		-.2880		-.2917	
	0.73		-.1804				-.2880			
	0.94						-.2867			
Nozzle 6	0.09		-.2789				-.2678		-.2817	
	0.30		-.2775				-.2733		-.2830	
	0.51		-.2803				-.2789		-.2817	
	0.73		-.2817							
Star		0.00	-.2427							
		0.12				-.2441				-.2399
		0.23				-.2483				-.2427
$\alpha = -8°$; $q_\infty = 651$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		.0992	-.2287	-.3012	-.2616	-.2628	-.3161	-.2020	.0531
	0.30		.0928	-.2353	-.2802	-.2604	-.2628	-.2777	-.2057	.0716
	0.51		-.0127	-.2564	-.2690	-.2616	-.2616	-.2640	-.2318	.0255
	0.73		-.1786		-.2640		-.2604		-.2504	
	0.94		-.2628							
Nozzle 3	0.09		.1020	.1006	-.1499		-.2653		-.2889	-.2656
	0.30		.0690	.1098	-.1561		-.2628		-.2753	-.2604
	0.51		-.0588		-.1859		-.2628		-.2665	
	0.73		-.1997				-.2591			
	0.94						-.2591			
Nozzle 6	0.09		-.2522				-.2468		-.2591	
	0.30		-.2577				-.2536		-.2577	
	0.51		-.2577				-.2577		-.2591	
	0.73		-.2591							
Star		0.00	-.2015							
		0.12				-.2427				-.2276
		0.23				-.2577				-.2536

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0065	-.1791	-.2065	-.1789	-.2065	-.1905	.0009	.0886
	0.30		.0188	-.1838	-.1920	-.1818	-.1920	-.1833	.0024	.1117
	0.51		-.0121	-.1869	-.1876	-.1847	-.1905	-.1905	-.0252	.1070
	0.73		-.1018		-.1847		-.1876		-.1005	
	0.94		-.1804							
Nozzle 3	0.09		.0018	.1101	.0255		-.2021		-.1978	-.1947
	0.30		-.0013	.1163	.0212		-.1905		-.1891	-.1916
	0.51		-.0353		.0038		-.1876		-.1891	
	0.73		-.1126				-.1876			
	0.94						-.1847			
Nozzle 6	0.09		-.1675				-.1675		-.1757	
	0.30		-.1740				-.1757		-.1771	
	0.51		-.1757				-.1757		-.1757	
	0.73		-.1757							
Star		0.00	-.1242							
		0.12				-.1259				-.1242
		0.23				-.1306				-.1273
$\alpha = 0°$; $q_\infty = 573$; $p_j/p_\infty = 6.0$										
Nozzle 2	0.09		.0028	-.1674	-.1489	-.1406	-.1489	-.1657	.0047	.0909
	0.30		-.0017	-.1585	-.1475	-.1406	-.1461	-.1531	-.0092	.1029
	0.51		-.0570	-.1496	-.1447	-.1406	-.1433	-.1461	-.0624	.0745
	0.73		-.1257		-.1420		-.1420		-.1224	
	0.94		-.1406							
Nozzle 3	0.09		-.0002	.1043	.0270		-.1503		-.1517	-.1735
	0.30		-.0181	.1043	.0103		-.1489		-.1489	-.1601
	0.51		-.0780		-.0401		-.1461		-.1461	
	0.73		-.1346				-.1447			
	0.94						-.1433			
Nozzle 6	0.09		-.1458				-.1458		-.1442	
	0.30		-.1458				-.1458		-.1458	
	0.51		-.1442				-.1458		-.1458	
	0.73		-.1458							
Star		0.00	-.0262							
		0.12				-.0929				-.0882
		0.23				-.1318				-.1318

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0062	-.1802	-.2108	-.1862	-.1978	-.2152	-.0181	.0886
	0.30		.0078	-.1833	-.1992	-.1891	-.1920	-.2094	-.0167	.1009
	0.51		-.0264	-.1878	-.1920	-.1905	-.1934	-.2094	-.0471	.0886
	0.73		-.1117		-.1891		-.1920		-.1079	
	0.94		-.1847							
Nozzle 3	0.09		.0062	.1103	.0067		-.1978		-.2007	-.1941
	0.30		-.0047	.1117	.0036		-.1920		-.1963	-.1941
	0.51		-.0465		-.0181		-.1934		-.1949	
	0.73		-.1242				-.1949			
	0.94						-.1934			
Nozzle 6	0.09		-.1876				-.1876		-.1909	
	0.30		-.1925				-.1925		-.1941	
	0.51		-.1941				-.1925		-.1941	
	0.73		-.1958							
Star		0.00	-.1570							
		0.12				-.1570				-.1521
		0.23				-.1634				-.1521
$\alpha = -2^\circ$; $q_\infty = 554$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.0069	-.1618	-.1513	-.1426	-.1542	-.1730	-.0150	.0861
	0.30		-.0177	-.1540	-.1484	-.1441	-.1499	-.1600	-.0325	.0878
	0.51		-.0688	-.1495	-.1455	-.1398	-.1455	-.1484	-.0701	.0442
	0.73		-.1293		-.1426		-.1426		-.1165	
	0.94		-.1398							
Nozzle 3	0.09		-.0007	.1094	.0096		-.1528		-.1528	-.1681
	0.30		-.0255	.1047	-.0092		-.1499		-.1499	-.1573
	0.51		-.0859		-.0455		-.1470		-.1455	
	0.73		-.1387				-.1441			
	0.94						-.1426			
Nozzle 6	0.09		-.1423				-.1407		-.1407	
	0.30		-.1407				-.1455		-.1455	
	0.51		-.1455				-.1455		-.1455	
	0.73		-.1455							
Star		0.00	-.0163							
		0.12				-.0906				-.0858
		0.23				-.1309				-.1309

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ∅ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0328	-.1707	-.2162	-.2017	-.1988	-.2278	-.0636	.0531
	0.30		.0250	-.1816	-.2133	-.2017	-.1988	-.2191	-.0679	.0545
	0.51		-.0185	-.1910	-.2017	-.2002	-.2017	-.2147	-.0955	.0266
	0.73		-.1085		-.2002		-.2017		-.1493	
	0.94		-.1886							
Nozzle 3	0.09		.0219	.0902	-.0228		-.1973		-.2147	-.1910
	0.30		.0018	.0810	-.0301		-.1973		-.2089	-.1955
	0.51		-.0464		-.0564		-.2002		-.2031	
	0.73		-.1180				-.2017			
	0.94						-.2017			
Nozzle 6	0.09		-.2000				-.1921		-.2000	
	0.30		-.2017				-.2000		-.2033	
	0.51		-.2017				-.2017		-.2017	
	0.73		-.2017							
Star		0.00	-.1774							
		0.12				-.1790				-.1758
		0.23				-.1807				-.1758
$\alpha = -4^\circ$; $q_\infty = 554$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		.0126	-.1592	-.1518	-.1460	-.151	-.1693	-.0680	.0420
	0.30		-.0074	-.1514	-.1474	-.1431	-.1489	-.1547	-.0767	.0343
	0.51		-.0693	-.1498	-.1446	-.1402	-.1460	-.1460	-.1041	-.0105
	0.73		-.1298		-.1417		-.1431		-.1287	
	0.94		-.1402							
Nozzle 3	0.09		.0079	.0792	-.0260		-.1532		-.1518	-.1653
	0.30		-.0229	.0653	-.0420		-.1518		-.1489	-.1559
	0.51		-.0818		-.0796		-.1474		-.1460	
	0.73		-.1328				-.1460			
	0.94						-.1417			
Nozzle 6	0.09		-.1418				-.1435		-.1467	
	0.30		-.1451				-.1467		-.1467	
	0.51		-.1451				-.1467		-.1500	
	0.73		-.1500							
Star		0.00	-.0199							
		0.12				-.0920				-.0888
		0.23				-.1323				-.1307

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -8^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0933	-.1319	-.2381	-.2308	-.2294	-.2337	-.1729	.0250
	0.30		.0888	-.1660	-.2439	-.2279	-.2250	-.2410	-.1801	.0422
	0.51		.0422	-.2019	-.2366	-.2265	-.2265	-.2308	-.2004	.0375
	0.73		-.0636		-.2265		-.2250		-.2221	
	0.94		-.1888							
Nozzle 3	0.09		.0857	.0593	-.1321		-.2250		-.2395	-.1614
	0.30		.0701	.0654	-.1422		-.2221		-.2410	-.1971
	0.51		.0188		-.1642		-.2236		-.2294	
	0.73		-.0745				-.2236			
	0.94						-.2236			
Nozzle 6	0.09		-.2019				-.2067		-.2261	
	0.30		-.2196				-.2182		-.2278	
	0.51		-.2261				-.2261		-.2278	
	0.73		-.2278							
Star		0.00	-.2002							
		0.12				-.2002				-.2002
		0.23				-.2019				-.1986
$\alpha = -8^{0}$; $q_{\infty} = 554$; $p_j/p_{\infty} = 6.2$										
Nozzle 2	0.09		.0737	-.1540	-.1670	-.1598	-.1583	-.1685	-.1641	.0287
	0.30		.0381	-.1509	-.1598	-.1598	-.1598	-.1612	-.1598	.0320
	0.51		-.0471	-.1634	-.1598	-.1583	-.1583	-.1598	-.1583	-.0130
	0.73		-.1340		-.1583		-.1583		-.1482	
	0.94		-.1583							
Nozzle 3	0.09		.0784	.0722	-.1293		-.1583		-.1627	-.1742
	0.30		.0256	.0645	-.1452		-.1598		-.1598	-.1650
	0.51		-.0657		-.1482		-.1598		-.1598	
	0.73		-.1401				-.1598			
	0.94						-.1569			
Nozzle 6	0.09		-.1600				-.1616		-.1616	
	0.30		-.1632				-.1632		-.1632	
	0.51		-.1616				-.1632		-.1632	
	0.73		-.1632							
Star		0.00	-.0293							
		0.12				-.1100				-.1002
		0.23				-.1537				-.1520

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0057	-.1356	-.1707	-.1576	-.1725	-.1374	-.0122	.0732
	0.30		.0041	-.1455	-.1652	-.1595	-.1652	-.1484	-.0048	.0831
	0.51		-.0076	-.1574	-.1595	-.1595	-.1631	-.1576	-.0158	.0753
	0.73		-.0569		-.1558		-.1613		-.0619	
	0.94		-.1356							
Nozzle 3	0.09		-.0135	.0870	.0101		-.1652		-.1670	-.1416
	0.30		-.0115	.0870	.0101		-.1576		-.1631	-.1535
	0.51		-.0252		.0046		-.1539		-.1595	
	0.73		-.0668				-.1576			
	0.94						-.1576			
Nozzle 6	0.09		-.1377				-.1397		-.1560	
	0.30		-.1539				-.1539		-.1601	
	0.51		-.1601				-.1601		-.1643	
	0.73		-.1643							
Star		0.00	-.1214							
		0.12				-.1214				-.1214
		0.23				-.1255				-.1234
$\alpha = 0^{\circ}$; $q_{\infty} = 442$; $p_j/p_{\infty} = 11.3$										
Nozzle 2	0.09		-.0063	-.0837	-.0939	-.0885	-.0957	-.0957	-.0195	.0631
	0.30		-.0181	-.0858	-.0903	-.0846	-.0921	-.0939	-.0358	.0516
	0.51		-.0489	-.0799	-.0885	-.0828	-.0885	-.0885	-.0629	.0070
	0.73		-.0740		-.0864		-.0885		-.0846	
	0.94		-.0846							
Nozzle 3	0.09		-.0143	.0747	.0005		-.0957		-.0939	-.0819
	0.30		-.0296	.0554	-.0177		-.0903		-.0903	-.0837
	0.51		-.0606		-.0484		-.0885		-.0903	
	0.73		-.0760				-.0903			
	0.94						-.0864			
Nozzle 6	0.09		-.0677				-.0697		-.0738	
	0.30		-.0717				-.0738		-.0776	
	0.51		-.0738				-.0738		-.0776	
	0.73		-.0776							
Star		0.00	.1607							
		0.12				.0326				.0405
		0.23				-.0337				-.0317

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0007	-.1305	-.1710	-.1655	-.1637	-.1710	-.0117	.0693
	0.30		.0027	-.1442	-.1655	-.1618	-.1618	-.1692	-.0171	.0811
	0.51		-.0071	-.1541	-.1600	-.1600	-.1637	-.1692	-.0446	.0693
	0.73		-.0521		-.1564		-.1618		-.1015	
	0.94		-.1381							
Nozzle 3	0.09		-.0091	.0850	.0030		-.1527		-.1692	-.1404
	0.30		-.0110	.0811	-.0007		-.1527		-.1655	-.1502
	0.51		-.0208		-.0263		-.1564		-.1618	
	0.73		-.0658				-.1600			
	0.94						-.1600			
Nozzle 6	0.09		-.1420				-.1461		-.1564	
	0.30		-.1564				-.1564		-.1664	
	0.51		-.1664				-.1664		-.1685	
	0.73		-.1685							
Star		0.00	-.1420							
		0.12				-.1420				-.1420
		0.23				-.1440				-.1420
$\alpha = -2°$; $q_\infty = 440$; $p_j/p_\infty = 11.3$										
Nozzle 2	0.09		-.0116	-.0880	-.1014	-.0959	-.0996	-.1014	-.0409	.0646
	0.30		-.0214	-.0880	-.0978	-.0923	-.0978	-.1014	-.0536	.0450
	0.51		-.0546	-.0880	-.0959	-.0887	-.0978	-.0959	-.0757	-.0059
	0.73		-.0821		-.0941		-.0959		-.0923	
	0.94		-.0923							
Nozzle 3	0.09		-.0136	.0782	-.0261		-.0978		-.0996	-.0880
	0.30		-.0332	.0527	-.0391		-.0978		-.0978	-.0880
	0.51		-.0643		-.0593		-.0959		-.0959	
	0.73		-.0839				-.0959			
	0.94						-.0941			
Nozzle 6	0.09		-.0757				-.0777		-.0816	
	0.30		-.0798				-.0798		-.0857	
	0.51		-.0816				-.0816		-.0857	
	0.73		-.0857							
Star		0.00	.1534							
		0.12				.0236				.0339
		0.23				-.0432				-.0432

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0221	-.1199	-.1686	-.1686	-.1668	-.1778	-.0414	.0437
	0.30		.0083	-.1397	-.1705	-.1686	-.1631	-.1723	-.0469	.0458
	0.51		-.0055	-.1592	-.1650	-.1650	-.1650	-.1668	-.0709	.0398
	0.73		-.0370		-.1594		-.1650		-.1263	
	0.94		-.1281							
Nozzle 3	0.09		.0083	.0536	-.0230		-.1576		-.1705	-.1376
	0.30		-.0074	.0479	-.0285		-.1576		-.1705	-.1535
	0.51		-.0232		-.0506		-.1594		-.1650	
	0.73		-.0508				-.1631			
	0.94						-.1631			
Nozzle 6	0.09		-.1433				-.1433		-.1576	
	0.30		-.1597				-.1576		-.1638	
	0.51		-.1659				-.1659		-.1680	
	0.73		-.1700							
Star		0.00	-.1454							
		0.12				-.1454				-.1454
		0.23				-.1495				-.1454
$\alpha = -4°$; $q_\infty = 439$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.0039	-.0897	-.0993	-.0993	-.0993	-.1029	-.0717	.0374
	0.30		-.0214	-.0897	-.0993	-.0957	-.0993	-.1029	-.0772	.0216
	0.51		-.0547	-.0897	-.0975	-.0920	-.0975	-.0993	-.0920	-.0194
	0.73		-.0838		-.0957		-.0975		-.0957	
	0.94		-.0957							
Nozzle 3	0.09		-.0155	.0490	-.0517		-.0993		-.1011	-.0897
	0.30		-.0369	.0314	-.0645		-.0993		-.1011	-.0918
	0.51		-.0663		-.0847		-.0975		-.0993	
	0.73		-.0859				-.0975			
	0.94						-.0975			
Nozzle 6	0.09		-.0811				-.0831		-.0893	
	0.30		-.0872				-.0872		-.0911	
	0.51		-.0893				-.0893		-.0911	
	0.73		-.0911							
Star		0.00	.1492							
		0.12				.0187				.0289
		0.23				-.0485				-.0465

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6^{0} outward]

(c) $M_{\infty} = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -8^{0}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0572	-.0903	-.1745	-.1763	-.1763	-.1781	-.1154	.0416
	0.30		.0572	-.1101	-.1763	-.1763	-.1745	-.1800	-.1154	.0476
	0.51		.0395	-.1494	-.1763	-.1726	-.1726	-.1763	-.1246	.0434
	0.73		.0080		-.1708		-.1726		-.1469	
	0.94		-.1117							
Nozzle 3	0.09		.0515	.0611	-.1007		-.1726		-.1745	-.1083
	0.30		.0434	.0632	-.0988		-.1689		-.1745	-.1358
	0.51		.0218		-.1025		-.1671		-.1726	
	0.73		-.0037				-.1689			
	0.94						-.1689			
Nozzle 6	0.09		-.1393				-.1517		-.1722	
	0.30		-.1722				-.1680		-.1784	
	0.51		-.1784				-.1784		-.1784	
	0.73		-.1784							
Star		0.00	-.1598							
		0.12				-.1598				-.1598
		0.23				-.1639				-.1598
$\alpha = -8^{0}$; $q_{\infty} = 436$; $p_j/p_{\infty} = 11.4$										
Nozzle 2	0.09		.0574	-.0982	-.1039	-.1076	-.1003	-.1076	-.1131	.0496
	0.30		.0259	-.1003	-.1076	-.1039	-.1021	-.1094	-.1076	.0436
	0.51		-.0351	-.1003	-.1076	-.0984	-.1021	-.1094	-.1039	-.0057
	0.73		-.0865		-.1058		-.1021		-.1003	
	0.94		-.1021							
Nozzle 3	0.09		.0535	.0771	-.1003		-.1039		-.1094	-.1042
	0.30		.0062	.0613	-.1003		-.1039		-.1076	-.1042
	0.51		-.0491		-.1021		-.1039		-.1076	
	0.73		-.0904				-.1058			
	0.94						-.1021			
Nozzle 6	0.09		-.0922				-.0943		-.0964	
	0.30		-.0984				-.0984		-.1026	
	0.51		-.0984				-.0984		-.1005	
	0.73		-.1005							
Star		0.00	.1535							
		0.12				.0142				.0266
		0.23				-.0535				-.0535

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0046	-.0948	-.1364	-.1311	-.1446	-.1180	-.0125	.0629
	0.30		.0010	-.1085	-.1338	-.1338	-.1338	-.1233	-.0072	.0629
	0.51		-.0046	-.1285	-.1311	-.1285	-.1338	-.1285	-.0180	.0518
	0.73		-.0354		-.1207		-.1311		-.0495	
	0.94		-.0997							
Nozzle 3	0.09		-.0213	.0715	.0033		-.1259		-.1311	-.1059
	0.30		-.0213	.0689	.0059		-.1259		-.1285	-.1200
	0.51		-.0298		-.0020		-.1180		-.1285	
	0.73		-.0495				-.1259			
	0.94						-.1285			
Nozzle 6	0.09		-.0941				-.1029		-.1236	
	0.30		-.1207				-.1236		-.1295	
	0.51		-.1295				-.1295		-.1325	
	0.73		-.1325							
Star		0.00	-.1000							
		0.12				-.1000				-.1000
		0.23				-.1000				-.1000
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.3$										
Nozzle 2	0.09		.0059	-.0334	-.0416	-.0389	-.0442	-.0442	-.0128	.0281
	0.30		-.0052	-.0334	-.0416	-.0389	-.0442	-.0442	-.0285	.0085
	0.51		-.0249	-.0334	-.0442	-.0311	-.0442	-.0442	-.0389	-.0137
	0.73		-.0304		-.0416		-.0442		-.0389	
	0.94		-.0416							
Nozzle 3	0.09		.0003	.0311	-.0075		-.0442		-.0442	-.0304
	0.30		-.0193	.0170	-.0180		-.0442		-.0442	-.0334
	0.51		-.0304		-.0337		-.0442		-.0442	
	0.73		-.0334				-.0442			
	0.94						-.0389			
Nozzle 6	0.09		-.0308				-.0337		-.0308	
	0.30		-.0308				-.0308		-.0308	
	0.51		-.0308				-.0308		-.0337	
	0.73		-.0337							
Star		0.00	.4090							
		0.12				.2052				.2196
		0.23				.0946				.0946

TABLE V.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0052	-.1005	-.1600	-.1600	-.1626	-.1600	-.0291	.0566
	0.30		.0003	-.1119	-.1600	-.1600	-.1600	-.1600	-.0347	.0677
	0.51		.0088	-.1286	-.1600	-.1574	-.1600	-.1600	-.0638	.0733
	0.73		-.0193		-.1495		-.1600		-.1119	
	0.94		-.1335							
Nozzle 3	0.09		-.0164	.0789	-.0131		-.1495		-.1600	-.1119
	0.30		-.0108	.0762	-.0160		-.1495		-.1574	-.1175
	0.51		-.0108		-.0425		-.1466		-.1574	
	0.73		-.0304				-.1548			
	0.94						-.1548			
Nozzle 6	0.09		-.0861				-.0975		-.1181	
	0.30		-.1211				-.1181		-.1296	
	0.51		-.1296				-.1266		-.1296	
	0.73		-.1296							
Star		0.00	-.1181							
		0.12				-.1181				-.1181
		0.23				-.1181				-.1181
$\alpha = -2^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.2$										
Nozzle 2	0.09		.0026	-.0336	-.0545	-.0516	-.0545	-.0545	-.0281	.0363
	0.30		-.0056	-.0366	-.0516	-.0516	-.0516	-.0545	-.0412	.0167
	0.51		-.0281	-.0366	-.0516	-.0412	-.0490	-.0490	-.0490	-.0114
	0.73		-.0336		-.0490		-.0490		-.0464	
	0.94		-.0464							
Nozzle 3	0.09		-.0029	.0447	-.0225		-.0490		-.0516	-.0366
	0.30		-.0140	.0222	-.0359		-.0464		-.0490	-.0366
	0.51		-.0336		-.0464		-.0464		-.0516	
	0.73		-.0366				-.0464			
	0.94						-.0438			
Nozzle 6	0.09		-.0278				-.0336		-.0278	
	0.30		-.0307				-.0336		-.0336	
	0.51		-.0336				-.0336		-.0336	
	0.73		-.0336							
Star		0.00	.4086							
		0.12				.2018				.2195
		0.23				.0915				.0973

TABLE V. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0059	-.0923	-.1211	-.1211	-.1289	-.1289	-.0295	.0281
	0.30		.0003	-.1064	-.1158	-.1158	-.1158	-.1211	-.0190	.0281
	0.51		.0003	-.1257	-.1158	-.1132	-.1158	-.1132	-.0242	.0367
	0.73		-.0082		-.1080		-.1158		-.0818	
	0.94		-.0635							
Nozzle 3	0.09		-.0082	.0478	-.0033		-.1054		-.1132	-.1090
	0.30		-.0167	.0422	.0046		-.1106		-.1106	-.1119
	0.51		-.0167		-.0085		-.1001		-.1132	
	0.73		-.0193				-.1106			
	0.94						-.1132			
Nozzle 6	0.09		-.0946				-.1005		-.1240	
	0.30		-.1240				-.1181		-.1266	
	0.51		-.1266				-.1266		-.1296	
	0.73		-.1266							
Star		0.00	-.1152							
		0.12				-.1181				-.1181
		0.23				-.1181				-.1181
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.2$										
Nozzle 2	0.09		.0056	-.0392	-.0474	-.0474	-.0474	-.0447	-.0265	.0251
	0.30		-.0056	-.0392	-.0395	-.0421	-.0421	-.0447	-.0369	.0137
	0.51		-.0251	-.0392	-.0447	-.0369	-.0395	-.0421	-.0421	-.0140
	0.73		-.0392		-.0447		-.0395		-.0238	
	0.94		-.0395							
Nozzle 3	0.09		-.0029	.0447	-.0265		-.0395		-.0447	-.0392
	0.30		-.0140	.0278	-.0291		-.0395		-.0447	-.0392
	0.51		-.0336		-.0395		-.0395		-.0447	
	0.73		-.0392				-.0369			
	0.94						-.0369			
Nozzle 6	0.09		-.0415				-.0444		-.0415	
	0.30		-.0415				-.0444		-.0444	
	0.51		-.0444				-.0444		-.0444	
	0.73		-.0444							
Star		0.00	.3981							
		0.12				.1901				.2107
		0.23				.0817				.0905

TABLE V. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 1, 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0533	-.0641	-.1548	-.1548	-.1548	-.1548	-.1044	.0452
	0.30		.0422	-.0753	-.1522	-.1548	-.1522	-.1574	-.0992	.0478
	0.51		.0281	-.1005	-.1548	-.1522	-.1522	-.1548	-.1044	.0337
	0.73		.0255		-.1495		-.1522		-.1257	
	0.94		-.0700							
Nozzle 3	0.09		.0393	.0674	-.0913		-.1495		-.1522	-.0838
	0.30		.0226	.0589	-.0861		-.1495		-.1495	-.0923
	0.51		.0085		-.0887		-.1391		-.1495	
	0.73		.0141				-.1443			
	0.94						-.1469			
Nozzle 6	0.09		-.0831				-.1152		-.1240	
	0.30		-.1211				-.1240		-.1240	
	0.51		-.1240				-.1270		-.1355	
	0.73		-.1355							
Star		0.00	-.1211							
		0.12				-.1211				-.1211
		0.23				-.1211				-.1211
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.2$										
Nozzle 2	0.09		.0452	-.0389	-.0497	-.0471	-.0497	-.0497	-.0497	.0510
	0.30		.0200	-.0471	-.0497	-.0471	-.0471	-.0471	-.0497	.0370
	0.51		-.0193	-.0471	-.0497	-.0497	-.0471	-.0471	-.0471	-.0052
	0.73		-.0471		-.0471		-.0471		-.0471	
	0.94		-.0471							
Nozzle 3	0.09		.0370	.0677	-.0471		-.0497		-.0497	-.0416
	0.30		.0088	.0452	-.0471		-.0497		-.0471	-.0501
	0.51		-.0304		-.0471		-.0471		-.0497	
	0.73		-.0471				-.0471			
	0.94						-.0471			
Nozzle 6	0.09		-.0363				-.0507		-.0478	
	0.30		-.0478				-.0507		-.0507	
	0.51		-.0507				-.0507		-.0507	
	0.73		-.0507							
Star		0.00	.4045							
		0.12				.1944				.2147
		0.23				.0923				.0923

TABLE VI

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2967	-.3001	-.2947	-.2959	-.2959	-.2959	-.2947	-.3001
	0.30		-.3001	-.3018	-.2971	-.2897	-.2959	-.2959	-.2947	-.3001
	0.51		-.3018	-.3001	-.2984	-.2897	-.2971	-.2947	-.2947	-.3001
	0.73		-.3001		-.2959		-.2947		-.2947	
Nozzle 3	0.09		-.3035	-.3052	-.2984		-.2984		-.2984	-.3052
	0.30		-.3035	-.3035	-.2984		-.2996		-.2984	-.3035
	0.51		-.3035		-.2984		-.2996		-.2984	
	0.73		-.3035				-.2996			
Nozzle 6	0.09		-.3108				-.3072		-.2948	
	0.30		-.3001				-.3001		-.3001	
	0.51		-.2982				-.2982		-.3001	
	0.73								-.2982	
Shroud	0.13									.0948
	0.41									.1607
	0.62								-.3196	.2336
	0.81								-.3481	
	1.00								-.2948	.3012
Heat Shield		0.68								-.2948
		0.79								-.2982
		0.91								
		1.13	-.2913							
		1.25	-.2982							
		1.38	-.2982							
Star		0.00	-.2290							
		0.12				-.2290				-.2254
		0.23				-.2378				-.2236

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2943	-.2977	-.2974	-.2961	-.2961	-.2961	-.2949	-.2977
	0.30		-.2977	-.2994	-.2986	-.2924	-.2974	-.2961	-.2949	-.2977
	0.51		-.2977	-.2977	-.2998	-.2899	-.2986	-.2961	-.2949	-.2960
	0.73		-.2977		-.2974		-.2961		-.2949	
Nozzle 3	0.09		-.3011	-.3028	-.2998		-.2998		-.2986	-.3011
	0.30		-.3011	-.3011	-.2998		-.2998		-.2998	-.3011
	0.51		-.3011		-.2998		-.2998		-.2998	
	0.73		-.3011				-.3011			
Nozzle 6	0.09		-.3141				-.3088		-.2963	
	0.30		-.3017				-.3034		-.3034	
	0.51		-.3017				-.3034		-.3034	
	0.73								-.3034	
Shroud	0.13									.0954
	0.41									.1542
	0.62								-.3212	.2183
	0.81								-.3426	
	1.00								-.2946	.2769
Heat Shield		0.68								-.2981
		0.79								-.2981
		0.91								
		1.13	-.2998							
		1.25	-.3017							
		1.38	-.3017							
Star		0.00	-.2447							
		0.12				-.2464				-.2412
		0.23				-.2500				-.2393

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2943	-.2977	-.2940	-.2927	-.2940	-.2940	-.2927	-.2977
	0.30		-.2977	-.2977	-.2952	-.2878	-.2940	-.2940	-.2927	-.2977
	0.51		-.2977	-.2977	-.2964	-.2878	-.2964	-.2940	-.2927	-.2977
	0.73		-.2960		-.2952		-.2940		-.2927	
Nozzle 3	0.09		-.3011	-.3011	-.2989		-.2977		-.2964	-.3011
	0.30		-.3011	-.3011	-.2964		-.2977		-.2964	-.3011
	0.51		-.3011		-.2964		-.2977		-.2964	
	0.73		-.3011				-.2977			
Nozzle 6	0.09		-.3110				-.3056		-.2950	
	0.30		-.2984				-.3039		-.3039	
	0.51		-.3039				-.3039		-.3039	
	0.73								-.3056	
Shroud	0.13									.0890
	0.41									.1458
	0.62								-.3162	.1921
	0.81								-.3305	
	1.00								-.2967	.2275
Heat Shield		0.68								-.2967
		0.79								-.2984
		0.91								
		1.13	-.2950							
		1.25	-.2984							
		1.38	-.2984							
Star		0.00	-.2647							
		0.12				-.2666				-.2611
		0.23				-.2683				-.2594

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3056	-.3090	-.2984	-.2972	-.3009	-.3009	-.2984	-.3090
	0.30		-.3090	-.3107	-.2997	-.2959	-.3009	-.2997	-.2997	-.3073
	0.51		-.3073	-.3073	-.3009	-.2984	-.3009	-.2997	-.2997	-.3056
	0.73		-.3056		-.2997		-.2997		-.2984	
Nozzle 3	0.09		-.3107	-.3124	-.3021		-.3034		-.2997	-.3124
	0.30		-.3107	-.3124	-.3009		-.3021		-.3021	-.3107
	0.51		-.3107		-.3021		-.3021		-.3009	
	0.73		-.3107				-.3021			
Nozzle 6	0.09		-.3111				-.3147		-.3023	
	0.30		-.3093				-.3128		-.3147	
	0.51		-.3128				-.3147		-.3164	
	0.73								-.3164	
Shroud	0.13									.0956
	0.41									.1418
	0.62								-.3164	.1827
	0.81								-.3218	
	1.00								-.3023	.2112
Heat Shield		0.68								-.3093
		0.79								-.3111
		0.91								
		1.13	-.3059							
		1.25	-.3076							
		1.38	-.3076							
Star		0.00	-.2863							
		0.12				-.2933				-.2845
		0.23				-.2916				-.2863

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3223	-.3257	-.3251	-.3066	-.3238	-.3153	-.3091	-.3223
	0.30		-.3240	-.3257	-.3190	-.3054	-.3178	-.3128	-.3116	-.3240
	0.51		-.3240	-.3223	-.3153	-.3066	-.3116	-.3104	-.3091	-.3223
	0.73		-.3223		-.3153		-.3116		-.3091	
Nozzle 3	0.09		-.3274	-.3274	-.3166		-.3251		-.3263	-.3291
	0.30		-.3274	-.3274	-.3166		-.3190		-.3203	-.3274
	0.51		-.3257		-.3153		-.3166		-.3153	
	0.73		-.3240				-.3166			
Nozzle 6	0.09		-.3181				-.3252		-.3234	
	0.30		-.3234				-.3288		-.3323	
	0.51		-.3252				-.3234		-.3288	
	0.73								-.3252	
Shroud	0.13									.0978
	0.41									.1653
	0.62								-.3305	.2347
	0.81								-.3483	
	1.00								-.2896	.3005
Heat Shield		0.68								-.3234
		0.79								-.3252
		0.91								
		1.13	-.3234							
		1.25	-.3234							
		1.38	-.3234							
Star		0.00	-.2310							
		0.12				-.2825				-.2683
		0.23				-.3039				-.3003

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3241	-.3275	-.3232	-.3085	-.3256	-.3157	-.3134	-.3258
	0.30		-.3275	-.3292	-.3195	-.3097	-.3182	-.3157	-.3157	-.3258
	0.51		-.3292	-.3258	-.3182	-.3145	-.3157	-.3157	-.3134	-.3258
	0.73		-.3275		-.3182		-.3170		-.3122	
Nozzle 3	0.09		-.3326	-.3326	-.3219		-.3281		-.3256	-.3326
	0.30		-.3326	-.3326	-.3195		-.3219		-.3219	-.3326
	0.51		-.3309		-.3195		-.3195		-.3182	
	0.73		-.3309				-.3207			
Nozzle 6	0.09		-.3239				-.3328		-.3204	
	0.30		-.3275				-.3328		-.3382	
	0.51		-.3311				-.3292		-.3328	
	0.73								-.3328	
Shroud	0.13									.0979
	0.41									.1586
	0.62								-.3328	.2195
	0.81								-.3418	
	1.00								-.2936	.2838
Heat Shield		0.68								-.3311
		0.79								-.3311
		0.91								
		1.13	-.3292							
		1.25	-.3311							
		1.38	-.3311							
Star		0.00	-.2381							
		0.12				-.2899				-.2756
		0.23				-.3131				-.3078

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3270	-.3303	-.3250	-.3139	-.3250	-.3188	-.3176	-.3287
	0.30		-.3320	-.3320	-.3238	-.3176	-.3200	-.3188	-.3188	-.3303
	0.51		-.3320	-.3320	-.3250	-.3213	-.3200	-.3188	-.3188	-.3303
	0.73		-.3320		-.3250		-.3213		-.3188	
Nozzle 3	0.09		-.3354	-.3354	-.3262		-.3287		-.3275	-.3354
	0.30		-.3354	-.3354	-.3262		-.3250		-.3250	-.3354
	0.51		-.3354		-.3250		-.3250		-.3262	
	0.73		-.3354				-.3262			
Nozzle 6	0.09		-.3255				-.3326		-.3219	
	0.30		-.3290				-.3309		-.3380	
	0.51		-.3326				-.3273		-.3344	
	0.73								-.3362	
Shroud	0.13									.0934
	0.41									.1466
	0.62								-.3255	.1928
	0.81								-.3326	
	1.00								-.2953	.2282
Heat Shield		0.68								-.3309
		0.79								-.3326
		0.91								
		1.13	-.3290							
		1.25	-.3309							
		1.38	-.3309							
Star		0.00	-.2367							
		0.12				-.2900				-.2741
		0.23				-.3131				-.3060

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3354	-.3388	-.3306	-.3271	-.3296	-.3283	-.3271	-.3371
	0.30		-.3405	-.3405	-.3331	-.3271	-.3296	-.3296	-.3283	-.3388
	0.51		-.3422	-.3405	-.3344	-.3306	-.3306	-.3306	-.3296	-.3405
	0.73		-.3422		-.3344		-.3306		-.3283	
Nozzle 3	0.09		-.3422	-.3440	-.3319		-.3319		-.3319	-.3422
	0.30		-.3422	-.3440	-.3319		-.3319		-.3331	-.3422
	0.51		-.3422		-.3319		-.3319		-.3344	
	0.73		-.3440				-.3319			
Nozzle 6	0.09		-.3330				-.3401		-.3082	
	0.30		-.3348				-.3401		-.3436	
	0.51		-.3419				-.3384		-.3419	
	0.73								-.3436	
Shroud	0.13									.0957
	0.41									.1382
	0.62								-.3241	.1808
	0.81								-.3241	
	1.00								-.3011	.2073
Heat Shield		0.68								-.3401
		0.79								-.3401
		0.91								
		1.13	-.3401							
		1.25	-.3401							
		1.38	-.3419							
Star		0.00	-.2392							
		0.12				-.2958				-.2675
		0.23				-.3153				-.3046

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2206	-.2206	-.2215	-.2173	-.2229	-.2229	-.2202	-.2226
	0.30		-.2226	-.2226	-.2229	-.2159	-.2229	-.2229	-.2215	-.2226
	0.51		-.2226	-.2226	-.2229	-.2188	-.2215	-.2215	-.2215	-.2206
	0.73		-.2206		-.2229		-.2215		-.2215	
Nozzle 3	0.09		-.2246	-.2246	-.2229		-.2229		-.2229	-.2246
	0.30		-.2226	-.2226	-.2229		-.2229		-.2244	-.2226
	0.51		-.2226		-.2229		-.2229		-.2229	
	0.73		-.2206				-.2229			
Nozzle 6	0.09		-.2228				-.2249		-.2208	
	0.30		-.2228				-.2228		-.2208	
	0.51		-.2228				-.2228		-.2228	
	0.73								-.2208	
Shroud	0.13									.1326
	0.41									.1719
	0.62								-.2208	.2090
	0.81								-.2188	
	1.00								-.1753	.2132
Heat Shield		0.68								-.2166
		0.79								-.2208
		0.91								
		1.13	-.2146							
		1.25	-.2208							
		1.38	-.2208							
Star		0.00	-.1608							
		0.12				-.1630				-.1588
		0.23				-.1670				-.1588

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2241	-.2261	-.2295	-.2264	-.2295	-.2279	-.2279	-.2261
	0.30		-.2281	-.2281	-.2295	-.2250	-.2295	-.2279	-.2279	-.2261
	0.51		-.2261	-.2261	-.2295	-.2264	-.2295	-.2279	-.2279	-.2261
	0.73		-.2261		-.2295		-.2279		-.2279	
Nozzle 3	0.09		-.2281	-.2281	-.2310		-.2310		-.2310	-.2281
	0.30		-.2281	-.2301	-.2295		-.2310		-.2295	-.2301
	0.51		-.2281		-.2295		-.2310		-.2295	
	0.73		-.2281				-.2295			
Nozzle 6	0.09		-.2366				-.2366		-.2324	
	0.30		-.2346				-.2346		-.2324	
	0.51		-.2324				-.2324		-.2346	
	0.73								-.2346	
Shroud	0.13									.1209
	0.41									.1562
	0.62								-.2283	.1915
	0.81								-.2241	
	1.00								-.1866	.1957
Heat Shield		0.68								-.2324
		0.79								-.2324
		0.91								
		1.13	-.2283							
		1.25	-.2304							
		1.38	-.2346							
Star		0.00	-.1866							
		0.12				-.1888				-.1846
		0.23				-.1950				-.1826

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2238	-.2278	-.2265	-.2250	-.2265	-.2265	-.2265	-.2278
	0.30		-.2278	-.2278	-.2265	-.2236	-.2265	-.2265	-.2265	-.2278
	0.51		-.2278	-.2278	-.2279	-.2236	-.2265	-.2265	-.2265	-.2278
	0.73		-.2278		-.2279		-.2265		-.2250	
Nozzle 3	0.09		-.2278	-.2298	-.2294		-.2279		-.2279	-.2298
	0.30		-.2278	-.2278	-.2279		-.2279		-.2279	-.2298
	0.51		-.2298		-.2265		-.2279		-.2279	
	0.73		-.2298				-.2279			
Nozzle 6	0.09		-.2303				-.2303		-.2281	
	0.30		-.2303				-.2303		-.2303	
	0.51		-.2303				-.2303		-.2303	
	0.73								-.2303	
Shroud	0.13									.1006
	0.41									.1297
	0.62								-.2261	.1547
	0.81								-.2240	
	1.00								-.1886	.1526
Heat Shield		0.68								-.2281
		0.79								-.2303
		0.91								
		1.13	-.2240							
		1.25	-.2281							
		1.38	-.2281							
Star		0.00	-.1970							
		0.12				-.1990				-.1948
		0.23				-.2011				-.1948

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2379	-.2437	-.2437	-.2379	-.2423	-.2423	-.2408	-.2437
	0.30		-.2437	-.2437	-.2437	-.2365	-.2437	-.2423	-.2423	-.2437
	0.51		-.2437	-.2437	-.2437	-.2394	-.2423	-.2423	-.2423	-.2437
	0.73		-.2437		-.2423		-.2423		-.2423	
Nozzle 3	0.09		-.2437	-.2437	-.2437		-.2437		-.2452	-.2437
	0.30		-.2437	-.2437	-.2437		-.2437		-.2437	-.2437
	0.51		-.2437		-.2423		-.2437		-.2437	
	0.73		-.2437				-.2423			
Nozzle 6	0.09		-.2424				-.2446		-.2424	
	0.30		-.2446				-.2446		-.2446	
	0.51		-.2446				-.2446		-.2446	
	0.73								-.2446	
Shroud	0.13									.0846
	0.41									.1180
	0.62								-.2341	.1451
	0.81								-.2363	
	1.00								-.2133	.1513
Heat Shield		0.68								-.2405
		0.79								-.2424
		0.91								
		1.13	-.2363							
		1.25	-.2424							
		1.38	-.2424							
Star		0.00	-.2133							
		0.12				-.2154				-.2113
		0.23				-.2154				-.2113

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.1929	-.1969	-.2088	-.1987	-.2146	-.2074	-.2030	-.1949
	0.30		-.1969	-.1969	-.2074	-.2045	-.2132	-.2088	-.2059	-.1969
	0.51		-.1949	-.1969	-.2074	-.2016	-.2103	-.2088	-.2045	-.1949
	0.73		-.1949		-.2045		-.2030		-.2030	
Nozzle 3	0.09		-.1969	-.1969	-.2045		-.2103		-.2103	-.1969
	0.30		-.1969	-.1969	-.2059		-.2103		-.2103	-.1969
	0.51		-.1969		-.2045		-.2088		-.2088	
	0.73		-.1969				-.2045			
Nozzle 6	0.09		-.1970				-.2012		-.2012	
	0.30		-.1970				-.2012		-.2032	
	0.51		-.1990				-.1990		-.2032	
	0.73								-.2032	
Shroud	0.13									.1273
	0.41									.1690
	0.62								-.1990	.2043
	0.81								-.2199	
	1.00								-.1804	.2106
Heat Shield		0.68								-.1970
		0.79								-.1970
		0.91								
		1.13	-.1949							
		1.25	-.1970							
		1.38	-.1970							
Star		0.00	-.0286							
		0.12				-.1284				-.1139
		0.23				-.1637				-.1576

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.1996	-.2036	-.2086	-.2043	-.2175	-.2101	-.2057	-.2016
	0.30		-.2036	-.2036	-.2086	-.2072	-.2161	-.2101	-.2086	-.2036
	0.51		-.2036	-.2036	-.2086	-.2043	-.2115	-.2101	-.2057	-.2016
	0.73		-.2036		-.2072		-.2043		-.2057	
Nozzle 3	0.09		-.2036	-.2056	-.2057		-.2132		-.2115	-.2056
	0.30		-.2056	-.2056	-.2086		-.2115		-.2115	-.2075
	0.51		-.2056		-.2057		-.2101		-.2115	
	0.73		-.2056				-.2057			
Nozzle 6	0.09		-.2050				-.2050		-.2050	
	0.30		-.2050				-.2050		-.2072	
	0.51		-.2050				-.2050		-.2050	
	0.73								-.2050	
Shroud	0.13									.1261
	0.41									.1594
	0.62								-.2072	.1927
	0.81								-.2175	
	1.00								-.1800	.1990
Heat Shield		0.68								-.2030
		0.79								-.2050
		0.91								
		1.13	-.2008							
		1.25	-.2050							
		1.38	-.2050							
Star		0.00	-.0322							
		0.12				-.1342				-.1155
		0.23				-.1697				-.1655

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) M_∞ = 2.00 - Continued

Location	x, in.	r, in.	C_p at ∅ of							
			0°	45°	90°	135°	180°	225°	270°	315°
α = -4°; q_∞ = 552; p_j/p_∞ = 6.3										
Nozzle 2	0.09		-.2052	-.2092	-.2090	-.2061	-.2133	-.2090	-.2032	-.2072
	0.30		-.2092	-.2112	-.2075	-.2075	-.2119	-.2090	-.2061	-.2092
	0.51		-.2092	-.2112	-.2090	-.2047	-.2090	-.2075	-.2047	-.2092
	0.73		-.2112		-.2075		-.2032		-.2032	
Nozzle 3	0.09		-.2112	-.2112	-.2075		-.2119		-.2104	-.2112
	0.30		-.2132	-.2132	-.2075		-.2104		-.2104	-.2132
	0.51		-.2132		-.2075		-.2090		-.2090	
	0.73		-.2132				-.2061			
Nozzle 6	0.09		-.2054				-.2054		-.2074	
	0.30		-.2074				-.2074		-.2074	
	0.51		-.2074				-.2074		-.2095	
	0.73								-.2095	
Shroud	0.13									.0962
	0.41									.1233
	0.62								-.2115	.1481
	0.81								-.2262	
	1.00								-.1949	.1462
Heat Shield		0.68								-.2095
		0.79								-.2095
		0.91								
		1.13	-.2074							
		1.25	-.2115							
		1.38	-.2115							
Star		0.00	-.0348							
		0.12				-.1409				-.1221
		0.23				-.1740				-.1701

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.2075	-.2115	-.2133	-.2104	-.2206	-.2162	-.2104	-.2095
	0.30		-.2115	-.2115	-.2133	-.2075	-.2162	-.2133	-.2119	-.2115
	0.51		-.2115	-.2115	-.2133	-.2075	-.2104	-.2104	-.2104	-.2115
	0.73		-.2115		-.2133		-.2104		-.2075	
Nozzle 3	0.09		-.2135	-.2135	-.2133		-.2206		-.2162	-.2135
	0.30		-.2135	-.2155	-.2148		-.2177		-.2162	-.2135
	0.51		-.2155		-.2119		-.2119		-.2133	
	0.73		-.2175				-.2104			
Nozzle 6	0.09		-.2114				-.2092		-.2133	
	0.30		-.2133				-.2114		-.2155	
	0.51		-.2155				-.2114		-.2155	
	0.73								-.2133	
Shroud	0.13									.0824
	0.41									.1157
	0.62								-.2155	.1427
	0.81								-.2300	
	1.00								-.2155	.1510
Heat Shield		0.68								-.2133
		0.79								-.2155
		0.91								
		1.13	-.2114							
		1.25	-.2155							
		1.38	-.2155							
Star		0.00	-.0322							
		0.12				-.1342				-.1114
		0.23				-.1675				-.1614

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1801	-.1874	-.1769	-.1659	-.1769	-.1769	-.1769	-.1849
	0.30		-.1874	-.1874	-.1769	-.1659	-.1769	-.1769	-.1769	-.1874
	0.51		-.1874	-.1874	-.1787	-.1732	-.1769	-.1769	-.1769	-.1874
	0.73		-.1874		-.1769		-.1769		-.1769	
Nozzle 3	0.09		-.1874	-.1751	-.1824		-.1787		-.1806	-.1874
	0.30		-.1874	-.1874	-.1769		-.1806		-.1806	-.1874
	0.51		-.1874		-.1769		-.1769		-.1806	
	0.73		-.1874				-.1787			
Nozzle 6	0.09		-.1741				-.1794		-.1741	
	0.30		-.1794				-.1794		-.1769	
	0.51		-.1769				-.1794		-.1794	
	0.73								-.1794	
Shroud	0.13									.1237
	0.41									.1448
	0.62								-.1583	.1631
	0.81								-.1558	
	1.00								-.1216	.1395
Heat Shield		0.68								-.1769
		0.79								-.1822
		0.91								
		1.13	-.1741							
		1.25	-.1822							
		1.38	-.1822							
Star		0.00	-.1294							
		0.12				-.1347				-.1269
		0.23				-.1425				-.1269

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ;\ q_\infty = 435;\ p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1750	-.1849	-.1750	-.1658	-.1750	-.1787	-.1695	-.1826
	0.30		-.1826	-.1826	-.1732	-.1621	-.1732	-.1805	-.1768	-.1826
	0.51		-.1826	-.1826	-.1768	-.1732	-.1787	-.1931	-.1676	-.1826
	0.73		-.1826		-.1750		-.1713		-.1787	
Nozzle 3	0.09		-.1826	-.1800	-.1750		-.1750		-.1750	-.1826
	0.30		-.1826	-.1826	-.1732		-.1750		-.1750	-.1826
	0.51		-.1826		-.1750		-.1750		-.1750	
	0.73		-.1826				-.1732			
Nozzle 6	0.09		-.1766				-.1872		-.1872	
	0.30		-.1872				-.1872		-.1872	
	0.51		-.1872				-.1872		-.1872	
	0.73								-.1872	
Shroud	0.13									.1192
	0.41									.1403
	0.62								-.1555	.1614
	0.81								-.1555	
	1.00								-.1238	.1378
Heat Shield		0.68								-.1794
		0.79								-.1872
		0.91								
		1.13	-.1766							
		1.25	-.1899							
		1.38	-.1899							
Star		0.00	-.1477							
		0.12				-.1529				-.1424
		0.23				-.1555				-.1424

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at Ø of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^o$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1729	-.1802	-.1750	-.1640	-.1713	-.1750	-.1695	-.1802
	0.30		-.1802	-.1802	-.1731	-.1624	-.1750	-.1731	-.1731	-.1802
	0.51		-.1802	-.1802	-.1768	-.1695	-.1731	-.1731	-.1731	-.1777
	0.73		-.1777		-.1750		-.1731		-.1713	
Nozzle 3	0.09		-.1802	-.1777	-.1750		-.1750		-.1768	-.1802
	0.30		-.1802	-.1802	-.1750		-.1768		-.1768	-.1802
	0.51		-.1802		-.1768		-.1750		-.1768	
	0.73		-.1802				-.1768			
Nozzle 6	0.09		-.1713				-.1818		-.1818	
	0.30		-.1846				-.1846		-.1818	
	0.51		-.1818				-.1846		-.1846	
	0.73								-.1818	
Shroud	0.13									.1014
	0.41									.1227
	0.62								-.1553	.1385
	0.81								-.1553	
	1.00								-.1367	.1280
Heat Shield		0.68								-.1818
		0.79								-.1818
		0.91								
		1.13	-.1713							
		1.25	-.1871							
		1.38	-.1871							
Star		0.00	-.1527							
		0.12				-.1553				-.1527
		0.23				-.1580				-.1500

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12^{0} outward and engines 1 and 4 gimbaled 6^{0} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -8^{0}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1852	-.1852	-.1806	-.1787	-.1806	-.1824	-.1787	-.1852
	0.30		-.1852	-.1852	-.1806	-.1751	-.1824	-.1806	-.1806	-.1852
	0.51		-.1852	-.1852	-.1824	-.1806	-.1806	-.1806	-.1806	-.1852
	0.73		-.1852		-.1824		-.1806		-.1806	
Nozzle 3	0.09		-.1852	-.1801	-.1824		-.1824		-.1842	-.1852
	0.30		-.1852	-.1852	-.1842		-.1842		-.1842	-.1852
	0.51		-.1852		-.1824		-.1842		-.1861	
	0.73		-.1852				-.1842			
Nozzle 6	0.09		-.1870				-.1897		-.1897	
	0.30		-.1897				-.1897		-.1897	
	0.51		-.1897				-.1897		-.1897	
	0.73								-.1897	
Shroud	0.13									.0996
	0.41									.1207
	0.62								-.1712	.1445
	0.81								-.1712	
	1.00								-.1526	.1365
Heat Shield		0.68								-.1897
		0.79								-.1923
		0.91								
		1.13	-.1897							
		1.25	-.1923							
		1.38	-.1923							
Star		0.00	-.1631							
		0.12				-.1631				-.1578
		0.23				-.1659				-.1578

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1171	-.1222	-.1164	-.1091	-.1183	-.1183	-.1128	-.1196
	0.30		-.1196	-.1222	-.1164	-.1164	-.1183	-.1183	-.1164	-.1196
	0.51		-.1196	-.1196	-.1164	-.1146	-.1164	-.1183	-.1146	-.1196
	0.73		-.1196		-.1146		-.1146		-.1146	
Nozzle 3	0.09		-.1196	-.1196	-.1146		-.1183		-.1183	-.1196
	0.30		-.1196	-.1196	-.1183		-.1183		-.1164	-.1196
	0.51		-.1196		-.1146		-.1183		-.1183	
	0.73		-.1196				-.1146			
Nozzle 6	0.09		-.1134				-.1134		-.1187	
	0.30		-.1162				-.1134		-.1162	
	0.51		-.1134				-.1134		-.1162	
	0.73								-.1134	
Shroud	0.13									.1371
	0.41									.1557
	0.62								-.1134	.1768
	0.81								-.1268	
	1.00								-.1082	.1529
Heat Shield		0.68								-.1109
		0.79								-.1109
		0.91								
		1.13	-.1109							
		1.25	-.1109							
		1.38	-.1109							
Star		0.00	.1663							
		0.12				.0264				.0370
		0.23				-.0317				-.0264

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_{\infty} = 435$; $p_j/p_{\infty} = 11.4$										
Nozzle 2	0.09		-.1199	-.1249	-.1132	-.1132	-.1169	-.1151	-.1132	-.1224
	0.30		-.1224	-.1224	-.1132	-.1151	-.1151	-.1151	-.1151	-.1224
	0.51		-.1224	-.1249	-.1151	-.1132	-.1132	-.1132	-.1132	-.1224
	0.73		-.1224		-.1151		-.1114		-.1114	
Nozzle 3	0.09		-.1224	-.1224	-.1132		-.1169		-.1169	-.1249
	0.30		-.1249	-.1249	-.1151		-.1169		-.1151	-.1249
	0.51		-.1249		-.1132		-.1151		-.1151	
	0.73		-.1249				-.1132			
Nozzle 6	0.09		-.1261				-.1236		-.1288	
	0.30		-.1288				-.1236		-.1261	
	0.51		-.1261				-.1208		-.1261	
	0.73								-.1261	
Shroud	0.13									.1231
	0.41									.1469
	0.62								-.1261	.1655
	0.81								-.1421	
	1.00								-.1208	.1417
Heat Shield		0.68								-.1236
		0.79								-.1236
		0.91								
		1.13	-.1261							
		1.25	-.1288							
		1.38	-.1261							
Star		0.00	.1547							
		0.12				.0170				.0250
		0.23				-.0440				-.0413

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 11.4$										
Nozzle 2	0.09		-.1195	-.1246	-.1161	-.1161	-.1179	-.1179	-.1142	-.1246
	0.30		-.1246	-.1246	-.1179	-.1179	-.1179	-.1198	-.1179	-.1246
	0.51		-.1246	-.1271	-.1198	-.1179	-.1161	-.1161	-.1161	-.1246
	0.73		-.1246		-.1179		-.1161		-.1161	
Nozzle 3	0.09		-.1271	-.1246	-.1161		-.1179		-.1198	-.1271
	0.30		-.1271	-.1271	-.1179		-.1179		-.1179	-.1271
	0.51		-.1271		-.1161		-.1161		-.1179	
	0.73		-.1271				-.1161			
Nozzle 6	0.09		-.1262				-.1234		-.1287	
	0.30		-.1262				-.1234		-.1262	
	0.51		-.1262				-.1234		-.1262	
	0.73								-.1262	
Shroud	0.13									.0991
	0.41									.1255
	0.62								-.1287	.1466
	0.81								-.1421	
	1.00								-.1315	.1202
Heat Shield		0.68								-.1262
		0.79								-.1262
		0.91								
		1.13	-.1287							
		1.25	-.1287							
		1.38	-.1287							
Star		0.00	.1572							
		0.12				.0170				.0248
		0.23				-.0441				-.0414

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1271	-.1296	-.1149	-.1149	-.1131	-.1149	-.1131	-.1296
	0.30		-.1296	-.1322	-.1149	-.1149	-.1131	-.1149	-.1149	-.1322
	0.51		-.1322	-.1347	-.1149	-.1149	-.1149	-.1149	-.1131	-.1322
	0.73		-.1322		-.1149		-.1131		-.1113	
Nozzle 3	0.09		-.1322	-.1322	-.1149		-.1186		-.1131	-.1347
	0.30		-.1322	-.1347	-.1149		-.1149		-.1186	-.1347
	0.51		-.1322		-.1149		-.1149		-.1131	
	0.73		-.1347				-.1131			
Nozzle 6	0.09		-.1266				-.1266		-.1292	
	0.30		-.1292				-.1266		-.1292	
	0.51		-.1266				-.1266		-.1266	
	0.73								-.1266	
Shroud	0.13									.0977
	0.41									.1269
	0.62								-.1344	.1452
	0.81								-.1425	
	1.00								-.1503	.1347
Heat Shield		0.68								-.1266
		0.79								-.1266
		0.91								
		1.13	-.1266							
		1.25	-.1292							
		1.38	-.1292							
Star		0.00	.1558							
		0.12				.0186				.0266
		0.23				-.0447				-.0422

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1301	-.1409	-.1314	-.1265	-.1314	-.1314	-.1291	-.1228
	0.30		-.1373	-.1409	-.1212	-.1238	-.1291	-.1314	-.1314	-.1409
	0.51		-.1409	-.1409	-.1314	-.1314	-.1314	-.1314	-.1314	-.1409
	0.73		-.1409		-.1314		-.1314		-.1314	
Nozzle 3	0.09		-.1409	-.1084	-.1314		-.1314		-.1340	-.1409
	0.30		-.1409	-.1409	-.1314		-.1340		-.1314	-.1409
	0.51		-.1409		-.1340		-.1340		-.1340	
	0.73		-.1409				-.1340			
Nozzle 6	0.09		-.1205				-.1357		-.1357	
	0.30		-.1357				-.1357		-.1357	
	0.51		-.1357				-.1357		-.1357	
	0.73								-.1357	
Shroud	0.13									.1173
	0.41									.1324
	0.62								-.1094	.1360
	0.81								-.1054	
	1.00								-.0716	.0870
Heat Shield		0.68								-.1320
		0.79								-.1357
		0.91								
		1.13	-.1205							
		1.25	-.1320							
		1.38	-.1357							
Star		0.00	-.1094							
		0.12				-.1094				-.1094
		0.23				-.1130				-.1094

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1300	-.1409	-.1339	-.1287	-.1339	-.1339	-.1339	-.1336
	0.30		-.1372	-.1409	-.1287	-.1260	-.1366	-.1366	-.1366	-.1409
	0.51		-.1409	-.1409	-.1339	-.1392	-.1392	-.1366	-.1366	-.1409
	0.73		-.1409		-.1524		-.1366		-.1471	
Nozzle 3	0.09		-.1409	-.1155	-.1392		-.1392		-.1392	-.1409
	0.30		-.1409	-.1409	-.1392		-.1418		-.1497	-.1409
	0.51		-.1409		-.1392		-.1418		-.1445	
	0.73		-.1409				-.1418			
Nozzle 6	0.09		-.1244				-.1356		-.1356	
	0.30		-.1395				-.1395		-.1356	
	0.51		-.1395				-.1395		-.1356	
	0.73								-.1395	
Shroud	0.13									.1178
	0.41									.1366
	0.62								-.1129	.1478
	0.81								-.1129	
	1.00								-.0826	.0987
Heat Shield		0.68								-.1356
		0.79								-.1356
		0.91								
		1.13	-.1244							
		1.25	-.1395							
		1.38	-.1395							
Star		0.00	-.1168							
		0.12				-.1205				-.1168
		0.23				-.1205				-.1168

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1300	-.1409	-.1422	-.1290	-.1369	-.1395	-.1290	-.1264
	0.30		-.1372	-.1409	-.1290	-.1316	-.1395	-.1369	-.1395	-.1409
	0.51		-.1409	-.1409	-.1576	-.1369	-.1395	-.1395	-.1395	-.1409
	0.73		-.1409		-.1448		-.1395		-.1369	
Nozzle 3	0.09		-.1409	-.1155	-.1422		-.1369		-.1422	-.1336
	0.30		-.1409	-.1409	-.1422		-.1395		-.1395	-.1409
	0.51		-.1409		-.1369		-.1448		-.1448	
	0.73		-.1409				-.1395			
Nozzle 6	0.09		-.1205				-.1356		-.1356	
	0.30		-.1356				-.1320		-.1356	
	0.51		-.1356				-.1320		-.1320	
	0.73								-.1356	
Shroud	0.13									.1027
	0.41									.1214
	0.62								-.1129	.1290
	0.81								-.1093	
	1.00								-.0977	.0987
Heat Shield		0.68								-.1320
		0.79								-.1320
		0.91								
		1.13	-.1205							
		1.25	-.1320							
		1.38	-.1356							
Star		0.00	-.1168							
		0.12				-.1168				-.1168
		0.23				-.1205				-.1168

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1301	-.1409	-.1396	-.1396	-.1396	-.1396	-.1317	-.1301
	0.30		-.1409	-.1445	-.1317	-.1317	-.1396	-.1422	-.1396	-.1445
	0.51		-.1445	-.1445	-.1449	-.1396	-.1422	-.1449	-.1370	-.1445
	0.73		-.1409		-.1370		-.1396		-.1396	
Nozzle 3	0.09		-.1409	-.1084	-.1370		-.1396		-.1422	-.1373
	0.30		-.1409	-.1409	-.1498		-.1422		-.1422	-.1409
	0.51		-.1409		-.1396		-.1524		-.1396	
	0.73		-.1445				-.1396			
Nozzle 6	0.09		-.1245				-.1360		-.1360	
	0.30		-.1360				-.1360		-.1360	
	0.51		-.1360				-.1360		-.1360	
	0.73								-.1396	
Shroud	0.13									.1045
	0.41									.1271
	0.62								-.1173	.1419
	0.81								-.1173	
	1.00								-.1097	.1081
Heat Shield		0.68								-.1396
		0.79								-.1396
		0.91								
		1.13	-.1245							
		1.25	-.1396							
		1.38	-.1396							
Star		0.00	-.1284							
		0.12				-.1284				-.1284
		0.23				-.1320				-.1284

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.5$										
Nozzle 2	0.09		-.0396	-.0468	-.0419	-.0366	-.0445	-.0445	-.0392	-.0468
	0.30		-.0468	-.0468	-.0419	-.0419	-.0419	-.0419	-.0419	-.0468
	0.51		-.0468	-.0468	-.0419	-.0419	-.0392	-.0419	-.0419	-.0468
	0.73		-.0468		-.0419		-.0419		-.0419	
Nozzle 3	0.09		-.0468	-.0432	-.0419		-.0445		-.0419	-.0468
	0.30		-.0468	-.0432	-.0419		-.0419		-.0445	-.0468
	0.51		-.0396		-.0392		-.0419		-.0419	
	0.73		-.0396				-.0419			
Nozzle 6	0.09		-.0195				-.0310		-.0234	
	0.30		-.0234				-.0234		-.0234	
	0.51		-.0234				-.0234		-.0234	
	0.73								-.0234	
Shroud	0.13									.1454
	0.41									.1530
	0.62								-.0234	.1566
	0.81								-.0310	
	1.00								-.0458	.1042
Heat Shield		0.68								-.0082
		0.79								-.0082
		0.91								
		1.13	-.0158							
		1.25	-.0195							
		1.38	-.0195							
Star		0.00	.4343							
		0.12				.2318				.2394
		0.23				.1418				.1454

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		-.0362	-.0471	-.0421	-.0369	-.0421	-.0448	-.0421	-.0434
	0.30		-.0471	-.0471	-.0448	-.0421	-.0421	-.0421	-.0421	-.0434
	0.51		-.0434	-.0434	-.0421	-.0421	-.0421	-.0421	-.0421	-.0434
	0.73		-.0398		-.0421		-.0421		-.0395	
Nozzle 3	0.09		-.0434	-.0434	-.0421		-.0448		-.0448	-.0434
	0.30		-.0434	-.0434	-.0448		-.0448		-.0448	-.0434
	0.51		-.0434		-.0421		-.0421		-.0421	
	0.73		-.0434				-.0421			
Nozzle 6	0.09		-.0372				-.0448		-.0448	
	0.30		-.0411				-.0448		-.0411	
	0.51		-.0411				-.0411		-.0411	
	0.73								-.0411	
Shroud	0.13									.1254
	0.41									.1366
	0.62								-.0448	.1478
	0.81								-.0523	
	1.00								-.0675	.1063
Heat Shield		0.68								-.0336
		0.79								-.0336
		0.91								
		1.13	-.0372							
		1.25	-.0372							
		1.38	-.0372							
Star		0.00	.4203							
		0.12				.2123				.2274
		0.23				.1254				.1290

TABLE VI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 23.4$							
Nozzle 2	0.09		-.0434	-.0507	-.0421	-.0369	-.0421	-.0421	-.0395	-.0471
	0.30		-.0471	-.0507	-.0421	-.0421	-.0421	-.0421	-.0421	-.0471
	0.51		-.0471	-.0507	-.0421	-.0448	-.0421	-.0421	-.0421	-.0471
	0.73		-.0471		-.0421		-.0421		-.0421	
Nozzle 3	0.09		-.0507	-.0507	-.0421		-.0448		-.0448	-.0507
	0.30		-.0507	-.0507	-.0448		-.0448		-.0448	-.0507
	0.51		-.0507		-.0448		-.0448		-.0448	
	0.73		-.0507				-.0448			
Nozzle 6	0.09		-.0411				-.0448		-.0448	
	0.30		-.0411				-.0448		-.0448	
	0.51		-.0411				-.0448		-.0448	
	0.73								-.0411	
Shroud	0.13									.1063
	0.41									.1214
	0.62								-.0487	.1214
	0.81								-.0563	
	1.00								-.0675	.0987
Heat Shield		0.68								-.0372
		0.79								-.0372
		0.91								
		1.13	-.0411							
		1.25	-.0411							
		1.38	-.0411							
Star		0.00	.4127							
		0.12				.2083				.2235
		0.23				.1214				.1254

TABLE VI. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		-.0545	-.0545	-.0476	-.0397	-.0503	-.0476	-.0476	-.0545
	0.30		-.0545	-.0581	-.0476	-.0476	-.0476	-.0476	-.0476	-.0545
	0.51		-.0581	-.0581	-.0476	-.0476	-.0476	-.0476	-.0476	-.0545
	0.73		-.0545		-.0476		-.0476		-.0476	
Nozzle 3	0.09		-.0581	-.0545	-.0450		-.0476		-.0476	-.0545
	0.30		-.0545	-.0545	-.0476		-.0476		-.0476	-.0581
	0.51		-.0545		-.0476		-.0476		-.0476	
	0.73		-.0545				-.0476			
Nozzle 6	0.09		-.0526				-.0565		-.0526	
	0.30		-.0526				-.0565		-.0526	
	0.51		-.0526				-.0565		-.0526	
	0.73								-.0526	
Shroud	0.13									.1018
	0.41									.1169
	0.62								-.0601	.1320
	0.81								-.0716	
	1.00								-.0716	.1018
Heat Shield		0.68								-.0450
		0.79								-.0450
		0.91								
		1.13	-.0526							
		1.25	-.0526							
		1.38	-.0565							
Star		0.00	.4112							
		0.12				.2076				.2191
		0.23				.1169				.1209

TABLE VII

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3129	-.3163	-.3112	-.3012	-.3112	-.3112		-.3163
	0.30		-.3163	-.3180	-.3112	-.3050	-.3112	-.3099	-.3099	-.3163
	0.51		-.3163	-.3163	-.3124	-.3087	-.3112	-.3112	-.3099	-.3180
	0.73		-.3163		-.3124		-.3112		-.3087	
Nozzle 3	0.09		-.3180	-.3180	-.3124		-.3135		-.3135	-.3197
	0.30		-.3197	-.3180	-.3124		-.3135		-.3135	-.3197
	0.51		-.3197		-.3112		-.3135		-.3124	
	0.73		-.3163				-.3135			
Nozzle 6	0.09		-.3043				-.3096		-.2507	
	0.30		-.3222				-.3168		-.2882	
	0.51		-.3151				-.3168		-.3168	
	0.73								-.3186	
Shroud	0.13									.3587
	0.41									.4640
	0.62								-.3186	.3283
	0.81								-.3365	
	1.00								-.3346	.3050
Heat Shield		0.68								-.3186
		0.79								-.3186
		0.91								
		1.13	-.3079							
		1.25	-.3203							
		1.38	-.3239							
Star		0.00	-.2150							
		0.12				-.2239				-.2239
		0.23				-.2310				-.2329

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3129	-.3146	-.3134	-.3073	-.3123	-.3134		-.3129
	0.30		-.3146	-.3163	-.3146	-.3086	-.3123	-.3123	-.3134	-.3146
	0.51		-.3146	-.3146	-.3159	-.3110	-.3123	-.3134	-.3110	-.3129
	0.73		-.3146		-.3159		-.3123		-.3061	
Nozzle 3	0.09		-.3129	-.3146	-.3134		-.3134		-.3134	-.3146
	0.30		-.3129	-.3129	-.3134		-.3123		-.3134	-.3146
	0.51		-.3146		-.3134		-.3134		-.3134	
	0.73		-.3129				-.3123			
Nozzle 6	0.09		-.3064				-.3117		-.2546	
	0.30		-.3152				-.3152		-.2868	
	0.51		-.3152				-.3152		-.3117	
	0.73								-.3152	
Shroud	0.13									.3720
	0.41									.4719
	0.62								-.2974	.3415
	0.81								-.3188	
	1.00								-.3278	.3040
Heat Shield		0.68								-.3135
		0.79								-.3152
		0.91								
		1.13	-.3045							
		1.25	-.3171							
		1.38	-.3207							
Star		0.00	-.2315							
		0.12				-.2332				-.2315
		0.23				-.2386				-.2350

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ∅ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3133	-.3150	-.3173	-.3111	-.3149	-.3149		-.3150
	0.30		-.3167	-.3167	-.3173	-.3124	-.3136	-.3149	-.3149	-.3150
	0.51		-.3150	-.3167	-.3186	-.3124	-.3149	-.3149	-.3136	-.3150
	0.73		-.3150		-.3186		-.3149		-.3099	
Nozzle 3	0.09		-.3167	-.3167	-.3149		-.3149		-.3149	-.3167
	0.30		-.3150	-.3150	-.3149		-.3149		-.3161	-.3167
	0.51		-.3150		-.3136		-.3149		-.3173	
	0.73		-.3150				-.3149			
Nozzle 6	0.09		-.3082				-.3063		-.2457	
	0.30		-.3153				-.3135		-.2761	
	0.51		-.3153				-.3153		-.3135	
	0.73								-.3153	
Shroud	0.13									.3613
	0.41									.4379
	0.62								-.2921	.3273
	0.81								-.3135	
	1.00								-.3313	.2505
Heat Shield		0.68								-.3153
		0.79								-.3153
		0.91								
		1.13	-.3118							
		1.25	-.3225							
		1.38	-.3242							
Star		0.00	-.2492							
		0.12				-.2528				-.2457
		0.23				-.2564				-.2457

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3246	-.3278	-.3247	-.3162	-.3222	-.3235		-.3278
	0.30		-.3278	-.3295	-.3247	-.3187	-.3222	-.3222	-.3222	-.3261
	0.51		-.3261	-.3278	-.3247	-.3187	-.3222	-.3222	-.3174	-.3261
	0.73		-.3261		-.3247		-.3210		-.3137	
Nozzle 3	0.09		-.3246	-.3246	-.3210		-.3222		-.3210	-.3246
	0.30		-.3246	-.3228	-.3210		-.3222		-.3210	-.3246
	0.51		-.3228		-.3162		-.3222		-.3197	
	0.73		-.3228				-.3222			
Nozzle 6	0.09		-.3121				-.3211		-.2231	
	0.30		-.3211				-.3228		-.2712	
	0.51		-.3228				-.3228		-.3211	
	0.73								-.3264	
Shroud	0.13									.4093
	0.41									.4947
	0.62								-.2873	.3007
	0.81								-.3069	
	1.00								-.3300	.2347
Heat Shield		0.68								-.3211
		0.79								-.3228
		0.91								
		1.13	-.3211							
		1.25	-.3247							
		1.38	-.3247							
Star		0.00	-.2909							
		0.12				-.2945				-.2855
		0.23				-.2979				-.2819

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3296	-.3382	-.3469	-.3122	-.3456	-.3332		-.3296
	0.30		-.3331	-.3365	-.3369	-.3233	-.3307	-.3282	-.3295	-.3281
	0.51		-.3313	-.3296	-.3307	-.3208	-.3270	-.3282	-.3282	-.3296
	0.73		-.3264		-.3320		-.3295		-.3270	
Nozzle 3	0.09		-.3313	-.3331	-.3295		-.3444		-.3469	-.3382
	0.30		-.3331	-.3313	-.3307		-.3332		-.3357	-.3313
	0.51		-.3313		-.3282		-.3307		-.3295	
	0.73		-.3264				-.3320			
Nozzle 6	0.09		-.3149				-.3168		-.2138	
	0.30		-.3273				-.3273		-.3149	
	0.51		-.3273				-.3273		-.3327	
	0.73								-.3309	
Shroud	0.13									.3790
	0.41									.4889
	0.62								-.3132	.3470
	0.81								-.3345	
	1.00								-.32[illegible]7	.3222
Heat Shield		0.68								-.3327
		0.79								-.3309
		0.91								
		1.13	-.3132							
		1.25	-.3237							
		1.38	-.3292							
Star		0.00	-.2155							
		0.12				-.2616				-.2546
		0.23				-.2900				-.2848

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3361	-.3429	-.3456	-.3159	-.3431	-.3319		-.3361
	0.30		-.3378	-.3412	-.3381	-.3257	-.3307	-.3294	-.3307	-.3344
	0.51		-.3361	-.3378	-.3356	-.3257	-.3294	-.3294	-.3282	-.3361
	0.73		-.3344		-.3369		-.3319		-.3282	
Nozzle 3	0.09		-.3361	-.3378	-.3331		-.3468		-.3468	-.3445
	0.30		-.3395	-.3378	-.3344		-.3356		-.3381	-.3412
	0.51		-.3378		-.3331		-.3344		-.3356	
	0.73		-.3344				-.3356			
Nozzle 6	0.09		-.3237				-.3203		-.2101	
	0.30		-.3308				-.3344		-.3184	
	0.51		-.3308				-.3327		-.3380	
	0.73								-.3344	
Shroud	0.13									.3561
	0.41									.4697
	0.62								-.3043	.3366
	0.81								-.3237	
	1.00								-.3291	.3029
Heat Shield		0.68								-.3344
		0.79								-.3361
		0.91								
		1.13	-.3237							
		1.25	-.3344							
		1.38	-.3380							
Star		0.00	-.2207							
		0.12				-.2651				-.2598
		0.23				-.2935				-.2900

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3393	-.3460	-.3469	-.3221	-.3395	-.3320		-.3393
	0.30		-.3409	-.3460	-.3420	-.3283	-.3308	-.3308	-.3333	-.3376
	0.51		-.3409	-.3426	-.3420	-.3283	-.3308	-.3333	-.3308	-.3393
	0.73		-.3393		-.3432		-.3333		-.3333	
Nozzle 3	0.09		-.3426	-.3443	-.3358		-.3432		-.3480	-.3477
	0.30		-.3443	-.3443	-.3370		-.3358		-.3395	-.3460
	0.51		-.3426		-.3358		-.3358		-.3407	
	0.73		-.3426				-.3358			
Nozzle 6	0.09		-.3313				-.3205		-.2153	
	0.30		-.3348				-.3367		-.3224	
	0.51		-.3348				-.3367		-.3420	
	0.73								-.3384	
Shroud	0.13									.3615
	0.41									.4489
	0.62								-.2920	.3311
	0.81								-.3153	
	1.00								-.3313	.2578
Heat Shield		0.68								-.3403
		0.79								-.3403
		0.91								
		1.13	-.3313							
		1.25	-.3384							
		1.38	-.3420							
Star		0.00	-.2241							
		0.12				-.2724				-.2634
		0.23				-.2991				-.2938

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3466	-.3534	-.3575	-.3293	-.3514	-.3429		-.3483
	0.30		-.3517	-.3534	-.3501	-.3354	-.3416	-.3429	-.3416	-.3483
	0.51		-.3517	-.3517	-.3514	-.3354	-.3429	-.3453	-.3429	-.3483
	0.73		-.3483		-.3514		-.3441		-.3441	
Nozzle 3	0.09		-.3517	-.3517	-.3441		-.3501		-.3563	-.3534
	0.30		-.3517	-.3517	-.3453		-.3453		-.3489	-.3534
	0.51		-.3534		-.3453		-.3466		-.3514	
	0.73		-.3517				-.3453			
Nozzle 6	0.09		-.3362				-.3308		-.1942	
	0.30		-.3415				-.3415		-.3184	
	0.51		-.3415				-.3398		-.3521	
	0.73								-.3503	
Shroud	0.13									.4058
	0.41									.4857
	0.62								-.2900	.2905
	0.81								-.3113	
	1.00								-.3344	.2231
Heat Shield		0.68								-.3503
		0.79								-.3521
		0.91								
		1.13	-.3450							
		1.25	-.3469							
		1.38	-.3486							
Star		0.00	-.2297							
		0.12				-.2758				-.2651
		0.23				-.3059				-.2971

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2308	-.2308	-.2403	-.2287	-.2388	-.2388		-.2308
	0.30		-.2308	-.2308	-.2403	-.2316	-.2388	-.2388	-.2388	-.2308
	0.51		-.2308	-.2308	-.2417	-.2359	-.2388	-.2388	-.2388	-.2308
	0.73		-.2308		-.2417		-.2388		-.2388	
Nozzle 3	0.09		-.2308	-.2308	-.2388		-.2403		-.2403	-.2308
	0.30		-.2308	-.2308	-.2388		-.2403		-.2403	-.2308
	0.51		-.2308		-.2388		-.2388		-.2388	
	0.73		-.2289				-.2403			
Nozzle 6	0.09		-.2173				-.2214		-.2049	
	0.30		-.2254				-.2276		-.2276	
	0.51		-.2296				-.2296		-.2296	
	0.73								-.2296	
Shroud	0.13									.3651
	0.41									.4227
	0.62								-.2028	.2664
	0.81								-.2069	
	1.00								-.1946	.2334
Heat Shield		0.68								-.2234
		0.79								-.2254
		0.91								
		1.13	-.2111							
		1.25	-.2254							
		1.38	-.2276							
Star		0.00	-.1596							
		0.12				-.1616				-.1596
		0.23				-.1658				-.1596

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2363	-.2401	-.2391	-.2275	-.2376	-.2376		-.2382
	0.30		-.2382	-.2401	-.2391	-.2318	-.2362	-.2376	-.2391	-.2401
	0.51		-.2401	-.2401	-.2405	-.2347	-.2362	-.2376	-.2376	-.2382
	0.73		-.2382		-.2405		-.2376		-.2362	
Nozzle 3	0.09		-.2401	-.2401	-.2391		-.2376		-.2376	-.2382
	0.30		-.2382	-.2401	-.2376		-.2376		-.2391	-.2401
	0.51		-.2401		-.2376		-.2376		-.2391	
	0.73		-.2382				-.2376			
Nozzle 6	0.09		-.2258				-.2342		-.2114	
	0.30		-.2363				-.2405		-.2363	
	0.51		-.2383				-.2405		-.2405	
	0.73								-.2405	
Shroud	0.13									.3720
	0.41									.4406
	0.62								-.2092	.2387
	0.81								-.2133	
	1.00								-.2072	.2240
Heat Shield		0.68								-.2363
		0.79								-.2383
		0.91								
		1.13	-.2280							
		1.25	-.2383							
		1.38	-.2383							
Star		0.00	-.1800							
		0.12				-.1842				-.1800
		0.23				-.1884				-.1780

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2362	-.2400	-.2375	-.2288	-.2360	-.2375		-.2400
	0.30		-.2400	-.2400	-.2389	-.2317	-.2360	-.2360	-.2360	-.2400
	0.51		-.2400	-.2400	-.2389	-.2331	-.2346	-.2360	-.2360	-.2400
	0.73		-.2400		-.2389		-.2360		-.2360	
Nozzle 3	0.09		-.2400	-.2400	-.2375		-.2360		-.2360	-.2380
	0.30		-.2380	-.2380	-.2375		-.2360		-.2360	-.2400
	0.51		-.2400		-.2360		-.2360		-.2375	
	0.73		-.2380				-.2360			
Nozzle 6	0.09		-.2281				-.2322		-.2176	
	0.30		-.2322				-.2364		-.2322	
	0.51		-.2342				-.2364		-.2384	
	0.73								-.2384	
Shroud	0.13									.3278
	0.41									.3591
	0.62								-.2134	.2259
	0.81								-.2198	
	1.00								-.2176	.1676
Heat Shield		0.68								-.2342
		0.79								-.2364
		0.91								
		1.13	-.2259							
		1.25	-.2364							
		1.38	-.2384							
Star		0.00	-.1968							
		0.12				-.1968				-.1926
		0.23				-.2009				-.1906

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2424	-.2444	-.2477	-.2406	-.2433	-.2448		-.2444
	0.30		-.2464	-.2464	-.2477	-.2421	-.2421	-.2448	-.2448	-.2464
	0.51		-.2464	-.2484	-.2477	-.2421	-.2421	-.2433	-.2433	-.2464
	0.73		-.2464		-.2477		-.2421		-.2433	
Nozzle 3	0.09		-.2444	-.2444	-.2433		-.2433		-.2433	-.2444
	0.30		-.2444	-.2444	-.2433		-.2421		-.2421	-.2444
	0.51		-.2444		-.2421		-.2421		-.2433	
	0.73		-.2444				-.2421			
Nozzle 6	0.09		-.2330				-.2423		-.2131	
	0.30		-.2423				-.2444		-.2361	
	0.51		-.2423				-.2464		-.2464	
	0.73								-.2464	
Shroud	0.13									.3609
	0.41									.3964
	0.62								-.2193	.1668
	0.81								-.2278	
	1.00								-.2278	.1751
Heat Shield		0.68								-.2423
		0.79								-.2444
		0.91								
		1.13	-.2298							
		1.25	-.2444							
		1.38	-.2444							
Star		0.00	-.2090							
		0.12				-.2090				-.2048
		0.23				-.2131				-.2048

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.1976	-.2036	-.2075	-.1844	-.2090	-.2075		-.1938
	0.30		-.1996	-.2036	-.2075	-.1902	-.2075	-.2061	-.2032	-.1956
	0.51		-.1976	-.2016	-.2032	-.1902	-.2018	-.2018	-.2003	-.1938
	0.73		-.1938		-.2003		-.1945		-.1945	
Nozzle 3	0.09		-.1976	-.1938	-.2003		-.2090		-.2075	-.1996
	0.30		-.1976	-.1956	-.2018		-.2061		-.2075	-.2016
	0.51		-.1976		-.2018		-.2018		-.2032	
	0.73		-.1938				-.1960			
Nozzle 6	0.09		-.1895				-.1875		-.1875	
	0.30		-.1895				-.1895		-.1936	
	0.51		-.1895				-.1895		-.1936	
	0.73								-.1895	
Shroud	0.13									.3691
	0.41									.4291
	0.62								-.1875	.2676
	0.81								-.2000	
	1.00								-.1936	.2346
Heat Shield		0.68								-.1875
		0.79								-.1895
		0.91								
		1.13	-.1772							
		1.25	-.1875							
		1.38	-.1875							
Star		0.00	-.0179							
		0.12				-.1151				-.1027
		0.23				-.1523				-.1482

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12^{o} outward and engines 1 and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.2$										
Nozzle 2	0.09		-.2025	-.2065	-.2074	-.1857	-.2103	-.2045		-.2005
	0.30		-.2065	-.2105	-.2074	-.1915	-.2060	-.2045	-.2016	-.2025
	0.51		-.2045	-.2065	-.2060	-.1915	-.2016	-.2016	-.2002	-.2005
	0.73		-.2005		-.2002		-.1973		-.1958	
Nozzle 3	0.09		-.2025	-.2025	-.2016		-.2118		-.2089	-.2065
	0.30		-.2045	-.2025	-.2031		-.2060		-.2074	-.2105
	0.51		-.2045		-.2016		-.2016		-.2031	
	0.73		-.2005				-.1987			
Nozzle 6	0.09		-.2038				-.1996		-.1975	
	0.30		-.2038				-.2038		-.2101	
	0.51		-.2060				-.2038		-.2080	
	0.73								-.2060	
Shroud	0.13									.3758
	0.41									.4450
	0.62								-.1955	.2351
	0.81								-.2060	
	1.00								-.2038	.2224
Heat Shield		0.68								-.2038
		0.79								-.2060
		0.91								
		1.13	-.1892							
		1.25	-.2018							
		1.38	-.2038							
Star		0.00	-.0316							
		0.12				-.1282				-.1177
		0.23				-.1660				-.1640

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.2043	-.2123	-.2114	-.1896	-.2142	-.2070		-.2043
	0.30		-.2083	-.2142	-.2099	-.1969	-.2085	-.2070	-.2056	-.2063
	0.51		-.2063	-.2103	-.2070	-.1940	-.2027	-.2027	-.2012	-.2063
	0.73		-.2063		-.2027		-.2012		-.1998	
Nozzle 3	0.09		-.2063	-.2063	-.2056		-.2128		-.2114	-.2123
	0.30		-.2083	-.2083	-.2070		-.2070		-.2099	-.2142
	0.51		-.2083		-.2056		-.2041		-.2056	
	0.73		-.2063				-.2027			
Nozzle 6	0.09		-.2065				-.2043		-.2001	
	0.30		-.2065				-.2065		-.2148	
	0.51		-.2106				-.2065		-.2128	
	0.73								-.2128	
Shroud	0.13									.3378
	0.41									.3671
	0.62								-.2043	.2226
	0.81								-.2170	
	1.00								-.2170	.1682
Heat Shield		0.68								-.2128
		0.79								-.2128
		0.91								
		1.13	-.1960							
		1.25	-.2085							
		1.38	-.2128							
Star		0.00	-.0328							
		0.12				-.1353				-.1228
		0.23				-.1751				-.1688

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^o$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.2144	-.2204	-.2175	-.1960	-.2233	-.2175		-.2164
	0.30		-.2184	-.2244	-.2175	-.2032	-.2175	-.2161	-.2119	-.2164
	0.51		-.2184	-.2224	-.2146	-.2018	-.2105	-.2119	-.2105	-.2164
	0.73		-.2164		-.2119		-.2090		-.2076	
Nozzle 3	0.09		-.2184	-.2184	-.2119		-.2233		-.2189	-.2204
	0.30		-.2184	-.2184	-.2132		-.2161		-.2175	-.2224
	0.51		-.2184		-.2119		-.2105		-.2119	
	0.73		-.2184				-.2105			
Nozzle 6	0.09		-.2137				-.2117		-.2054	
	0.30		-.2179				-.2159		-.2200	
	0.51		-.2179				-.2117		-.2200	
	0.73								-.2200	
Shroud	0.13									.3597
	0.41									.3909
	0.62								-.2117	.1581
	0.81								-.2262	
	1.00								-.2345	.1685
Heat Shield		0.68								-.2200
		0.79								-.2220
		0.91								
		1.13	-.2096							
		1.25	-.2179							
		1.38	-.2179							
Star		0.00	-.0350							
		0.12				-.1369				-.1223
		0.23				-.1743				-.1702

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1824	-.1900	-.1836	-.1781	-.1836	-.1836		-.1900
	0.30		-.1900	-.1900	-.1818	-.1781	-.1818	-.1836	-.1836	-.1900
	0.51		-.1900	-.1900	-.1836	-.1799	-.1836	-.1836	-.1836	-.1900
	0.73		-.1926		-.1836		-.1836		-.1836	
Nozzle 3	0.09		-.1926	-.1926	-.1836		-.1836		-.1836	-.1926
	0.30		-.1926	-.1926	-.1836		-.1836		-.1836	-.1926
	0.51		-.1926		-.1836		-.1836		-.1836	
	0.73		-.1926				-.1836			
Nozzle 6	0.09		-.1744				-.1797		-.1666	
	0.30		-.1822				-.1850		-.1875	
	0.51		-.1875				-.1875		-.1875	
	0.73								-.1875	
Shroud	0.13									.3541
	0.41									.3803
	0.62								-.1482	.1857
	0.81								-.1482	
	1.00								-.1401	.1594
Heat Shield		0.68								-.1822
		0.79								-.1875
		0.91								
		1.13	-.1482							
		1.25	-.1822							
		1.38	-.1903							
Star		0.00	-.1323							
		0.12				-.1351				-.1323
		0.23				-.1454				-.1323

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1803	-.1853	-.1805	-.1769	-.1805	-.1805		-.1878
	0.30		-.1878	-.1904	-.1824	-.1787	-.1805	-.1805	-.1824	-.1904
	0.51		-.1878	-.1904	-.1824	-.1787	-.1824	-.1805	-.1805	-.1904
	0.73		-.1878		-.1824		-.1824		-.1805	
Nozzle 3	0.09		-.1878	-.1904	-.1824		-.1824		-.1824	-.1878
	0.30		-.1878	-.1878	-.1824		-.1824		-.1824	-.1878
	0.51		-.1878		-.1824		-.1824		-.1824	
	0.73		-.1878				-.1805			
Nozzle 6	0.09		-.1693				-.1746		-.1668	
	0.30		-.1798				-.1824		-.1798	
	0.51		-.1798				-.1798		-.1824	
	0.73								-.1824	
Shroud	0.13									.3656
	0.41									.4077
	0.62								-.1405	.1874
	0.81								-.1430	
	1.00								-.1380	.1638
Heat Shield		0.68								-.1798
		0.79								-.1798
		0.91								
		1.13	-.1483							
		1.25	-.1798							
		1.38	-.1824							
Star		0.00	-.1457							
		0.12				-.1483				-.1405
		0.23				-.1535				-.1380

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1777	-.1827	-.1821	-.1802	-.1821	-.1821		-.1853
	0.30		-.1853	-.1853	-.1821	-.1821	-.1821	-.1821	-.1839	-.1853
	0.51		-.1853	-.1853	-.1839	-.1821	-.1821	-.1821	-.1821	-.1853
	0.73		-.1853		-.1839		-.1821		-.1821	
Nozzle 3	0.09		-.1853	-.1853	-.1821		-.1821		-.1839	-.1853
	0.30		-.1853	-.1853	-.1839		-.1839		-.1839	-.1853
	0.51		-.1853		-.1821		-.1821		-.1839	
	0.73		-.1853				-.1821			
Nozzle 6	0.09		-.1695				-.1695		-.1667	
	0.30		-.1695				-.1798		-.1798	
	0.51		-.1798				-.1798		-.1798	
	0.73								-.1798	
Shroud	0.13									.3259
	0.41									.3547
	0.62								-.1459	.1660
	0.81								-.1511	
	1.00								-.1484	.1557
Heat Shield		0.68								-.1798
		0.79								-.1798
		0.91								
		1.13	-.1459							
		1.25	-.1747							
		1.38	-.1798							
Star		0.00	-.1562							
		0.12				-.1614				-.1537
		0.23				-.1614				-.1537

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1851	-.1927	-.1892	-.1837	-.1856	-.1837		-.1952
	0.30		-.1977	-.1977	-.1892	-.1892	-.1892	-.1837	-.1837	-.1977
	0.51		-.1977	-.1977	-.1892	-.1892	-.1892	-.1892	-.1837	-.1977
	0.73		-.1977		-.1929		-.1892		-.1892	
Nozzle 3	0.09		-.1977	-.1977	-.1892		-.1892		-.1911	-.1977
	0.30		-.1977	-.1977	-.1911		-.1892		-.1911	-.1977
	0.51		-.1977		-.1892		-.1892		-.1911	
	0.73		-.1977				-.1892			
Nozzle 6	0.09		-.1743				-.1821		-.1743	
	0.30		-.1874				-.1954		-.1954	
	0.51		-.1927				-.1954		-.1980	
	0.73								-.1980	
Shroud	0.13									.3626
	0.41									.3732
	0.62								-.1637	.1626
	0.81								-.1665	
	1.00								-.1665	.1601
Heat Shield		0.68								-.1980
		0.79								-.1980
		0.91								
		1.13	-.1532							
		1.25	-.1980							
		1.38	-.1980							
Star		0.00	-.1637							
		0.12				-.1665				-.1637
		0.23				-.1665				-.1637

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1173	-.1223	-.1307	-.1162	-.1325	-.1325		-.1173
	0.30		-.1198	-.1223	-.1325	-.1271	-.1325	-.1325	-.1325	-.1198
	0.51		-.1198	-.1198	-.1307	-.1271	-.1289	-.1307	-.1307	-.1173
	0.73		-.1198		-.1289		-.1271		-.1271	
Nozzle 3	0.09		-.1198	-.1198	-.1307		-.1343		-.1325	-.1198
	0.30		-.1198	-.1198	-.1325		-.1325		-.1325	-.1198
	0.51		-.1198		-.1307		-.1307		-.1325	
	0.73		-.1173				-.1289			
Nozzle 6	0.09		-.1146				-.1146		-.1119	
	0.30		-.1146				-.1119		-.1196	
	0.51		-.1196				-.1119		-.1146	
	0.73								-.1146	
Shroud	0.13									.3577
	0.41									.3911
	0.62								-.1119	.1909
	0.81								-.1248	
	1.00								-.1223	.1704
Heat Shield		0.68								-.1119
		0.79								-.1146
		0.91								
		1.13	-.0914							
		1.25	-.1119							
		1.38	-.1119							
Star		0.00	.1704							
		0.12				.0395				.0368
		0.23				-.0298				-.0221

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1177	-.1228	-.1257	-.1184	-.1330	-.1294		-.1228
	0.30		-.1228	-.1253	-.1276	-.1239	-.1276	-.1276	-.1276	-.1228
	0.51		-.1228	-.1253	-.1276	-.1239	-.1257	-.1257	-.1257	-.1228
	0.73		-.1228		-.1257		-.1239		-.1239	
Nozzle 3	0.09		-.1253	-.1253	-.1276		-.1330		-.1276	-.1253
	0.30		-.1253	-.1253	-.1276		-.1276		-.1276	-.1253
	0.51		-.1253		-.1276		-.1257		-.1257	
	0.73		-.1228				-.1239			
Nozzle 6	0.09		-.1223				-.1248		-.1248	
	0.30		-.1248				-.1223		-.1301	
	0.51		-.1276				-.1223		-.1248	
	0.73								-.1276	
Shroud	0.13									.3783
	0.41									.4071
	0.62								-.1223	.1790
	0.81								-.1353	
	1.00								-.1353	.1660
Heat Shield		0.68								-.1223
		0.79								-.1248
		0.91								
		1.13	-.1040							
		1.25	-.1248							
		1.38	-.1248							
Star		0.00	.1687							
		0.12				.0325				.0325
		0.23				-.0384				-.0306

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1199	-.1249	-.1286	-.1231	-.1359	-.1304		-.1249
	0.30		-.1249	-.1275	-.1286	-.1268	-.1304	-.1286	-.1286	-.1249
	0.51		-.1249	-.1249	-.1304	-.1268	-.1268	-.1268	-.1286	-.1249
	0.73		-.1249		-.1286		-.1249		-.1249	
Nozzle 3	0.09		-.1249	-.1249	-.1286		-.1341		-.1304	-.1249
	0.30		-.1249	-.1249	-.1304		-.1304		-.1286	-.1275
	0.51		-.1249		-.1286		-.1286		-.1304	
	0.73		-.1249				-.1268			
Nozzle 6	0.09		-.1242				-.1242		-.1270	
	0.30		-.1295				-.1270		-.1295	
	0.51		-.1270				-.1270		-.1295	
	0.73								-.1295	
Shroud	0.13									.3364
	0.41									.3601
	0.62								-.1295	.1626
	0.81								-.1426	
	1.00								-.1479	.1467
Heat Shield		0.68								-.1270
		0.79								-.1295
		0.91								
		1.13	-.1084							
		1.25	-.1295							
		1.38	-.1295							
Star		0.00	.1679							
		0.12				.0338				.0285
		0.23				-.0374				-.0347

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1297	-.1348	-.1362	-.1325	-.1399	-.1380		-.1323
	0.30		-.1323	-.1348	-.1362	-.1343	-.1362	-.1362	-.1362	-.1348
	0.51		-.1348	-.1348	-.1362	-.1325	-.1343	-.1343	-.1343	-.1348
	0.73		-.1348		-.1362		-.1325		-.1288	
Nozzle 3	0.09		-.1348	-.1373	-.1343		-.1399		-.1362	-.1373
	0.30		-.1348	-.1373	-.1362		-.1362		-.1362	-.1399
	0.51		-.1373		-.1362		-.1362		-.1362	
	0.73		-.1348				-.1325			
Nozzle 6	0.09		-.1323				-.1295		-.1376	
	0.30		-.1376				-.1323		-.1376	
	0.51		-.1376				-.1348		-.1376	
	0.73								-.1376	
Shroud	0.13									.3626
	0.41									.3785
	0.62								-.1426	.1601
	0.81								-.1506	
	1.00								-.1637	.1548
Heat Shield		0.68								-.1348
		0.79								-.1376
		0.91								
		1.13	-.1190							
		1.25	-.1323							
		1.38	-.1376							
Star		0.00	.1653							
		0.12				.0285				.0285
		0.23				-.0400				-.0374

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1373	-.1409	-.1445	-.1393	-.1472	-.1472		-.1409
	0.30		-.1481	-.1481	-.1366	-.1366	-.1393	-.1498	-.1498	-.1481
	0.51		-.1481	-.1481	-.1445	-.1393	-.1445	-.1498	-.1472	-.1481
	0.73		-.1481		-.1472		-.1445		-.1472	
Nozzle 3	0.09		-.1481	-.1481	-.1445		-.1445		-.1498	-.1481
	0.30		-.1481	-.1481	-.1498		-.1419		-.1393	-.1481
	0.51		-.1481		-.1472		-.1445		-.1445	
	0.73		-.1481				-.1445			
Nozzle 6	0.09		-.1209				-.1360		-.1284	
	0.30		-.1360				-.1360		-.1360	
	0.51		-.1396				-.1360		-.1360	
	0.73								-.1396	
Shroud	0.13									.3295
	0.41									.3406
	0.62								-.1022	.1531
	0.81								-.1058	
	1.00								-.0982	.1005
Heat Shield		0.68								-.1360
		0.79								-.1360
		0.91								
		1.13	-.0647							
		1.25	-.1284							
		1.38	-.1320							
Star		0.00	-.1097							
		0.12				-.1097				-.1058
		0.23				-.1097				-.1097

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1372	-.1409	-.1366	-.1339	-.1392	-.1392		-.1409
	0.30		-.1409	-.1481	-.1339	-.1339	-.1366	-.1392	-.1392	-.1481
	0.51		-.1445	-.1481	-.1366	-.1339	-.1392	-.1392	-.1392	-.1481
	0.73		-.1481		-.1392		-.1366		-.1339	
Nozzle 3	0.09		-.1481	-.1481	-.1392		-.1392		-.1418	-.1481
	0.30		-.1481	-.1481	-.1392		-.1392		-.1392	-.1481
	0.51		-.1481		-.1418		-.1392		-.1392	
	0.73		-.1481				-.1392			
Nozzle 6	0.09		-.1244				-.1356		-.1244	
	0.30		-.1356				-.1395		-.1395	
	0.51		-.1395				-.1395		-.1395	
	0.73								-.1395	
Shroud	0.13									.3584
	0.41									.3735
	0.62								-.1093	.1622
	0.81								-.1093	
	1.00								-.1056	.1172
Heat Shield		0.68								-.1395
		0.79								-.1395
		0.91								
		1.13	-.0678							
		1.25	-.1320							
		1.38	-.1356							
Star		0.00	-.1132							
		0.12				-.1208				-.1132
		0.23				-.1208				-.1132

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1373	-.1409	-.1314	-.1314	-.1314	-.1366		-.1409
	0.30		-.1409	-.1409	-.1314	-.1340	-.1340	-.1366	-.1366	-.1409
	0.51		-.1409	-.1409	-.1366	-.1340	-.1340	-.1366	-.1366	-.1409
	0.73		-.1409		-.1366		-.1340		-.1340	
Nozzle 3	0.09		-.1409	-.1409	-.1366		-.1340		-.1366	-.1409
	0.30		-.1409	-.1409	-.1366		-.1366		-.1366	-.1409
	0.51		-.1409		-.1366		-.1314		-.1366	
	0.73		-.1409				-.1366			
Nozzle 6	0.09		-.1284				-.1432		-.1396	
	0.30		-.1396				-.1432		-.1432	
	0.51		-.1432				-.1432		-.1432	
	0.73								-.1432	
Shroud	0.13									.3078
	0.41									.3078
	0.62								-.1133	.1386
	0.81								-.1133	
	1.00								-.1133	.1123
Heat Shield		0.68								-.1432
		0.79								-.1432
		0.91								
		1.13	-.0719							
		1.25	-.1360							
		1.38	-.1432							
Star		0.00	-.1209							
		0.12				-.1245				-.1209
		0.23				-.1245				-.1169

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1409	-.1445	-.1366	-.1392	-.1366	-.1392		-.1517
	0.30		-.1517	-.1517	-.1366	-.1392	-.1366	-.1392	-.1418	-.1517
	0.51		-.1517	-.1517	-.1418	-.1392	-.1392	-.1392	-.1418	-.1517
	0.73		-.1517		-.1418		-.1392		-.1392	
Nozzle 3	0.09		-.1517	-.1517	-.1418		-.1392		-.1418	-.1517
	0.30		-.1517	-.1517	-.1392		-.1392		-.1418	-.1517
	0.51		-.1517		-.1418		-.1392		-.1418	
	0.73		-.1517				-.1392			
Nozzle 6	0.09		-.1280				-.1395		-.1395	
	0.30		-.1432				-.1395		-.1432	
	0.51		-.1432				-.1432		-.1471	
	0.73								-.1471	
Shroud	0.13									.3367
	0.41									.3327
	0.62								-.1168	.1514
	0.81								-.1244	
	1.00								-.1205	.1211
Heat Shield		0.68								-.1432
		0.79								-.1432
		0.91								
		1.13	-.0754							
		1.25	-.1432							
		1.38	-.1432							
Star		0.00	-.1280							
		0.12				-.1280				-.1280
		0.23				-.1395				-.1280

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.6$										
Nozzle 2	0.09		-.0510	-.0546	-.0629	-.0365	-.0629	-.0629		-.0546
	0.30		-.0546	-.0583	-.0629	-.0523	-.0629	-.0602	-.0602	-.0546
	0.51		-.0546	-.0546	-.0629	-.0629	-.0629	-.0602	-.0602	-.0546
	0.73		-.0546		-.0629		-.0629		-.0576	
Nozzle 3	0.09		-.0546	-.0546	-.0576		-.0629		-.0655	-.0546
	0.30		-.0546	-.0546	-.0629		-.0629		-.0629	-.0546
	0.51		-.0546		-.0602		-.0629		-.0629	
	0.73		-.0546				-.0629			
Nozzle 6	0.09		-.0530				-.0530		-.0530	
	0.30		-.0530				-.0530		-.0530	
	0.51		-.0530				-.0494		-.0530	
	0.73								-.0530	
Shroud	0.13									.3567
	0.41									.3604
	0.62								-.0494	.1649
	0.81								-.0569	
	1.00								-.0645	.1086
Heat Shield		0.68								-.0382
		0.79								-.0418
		0.91								
		1.13	-.0155							
		1.25	-.0382							
		1.38	-.0418							
Star		0.00	.4357							
		0.12				.2402				.2327
		0.23				.1386				.1461

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 23.7$										
Nozzle 2	0.09		-.0507	-.0579	-.0602	-.0369	-.0629	-.0602		-.0579
	0.30		-.0579	-.0579	-.0602	-.0523	-.0602	-.0602	-.0602	-.0579
	0.51		-.0579	-.0579	-.0576	-.0550	-.0576	-.0576	-.0576	-.0579
	0.73		-.0579		-.0576		-.0602		-.0576	
Nozzle 3	0.09		-.0579	-.0579	-.0602		-.0629		-.0629	-.0579
	0.30		-.0579	-.0579	-.0602		-.0602		-.0602	-.0579
	0.51		-.0579		-.0576		-.0576		-.0576	
	0.73		-.0579				-.0602			
Nozzle 6	0.09		-.0602				-.0602		-.0602	
	0.30		-.0638				-.0638		-.0638	
	0.51		-.0638				-.0638		-.0638	
	0.73								-.0638	
Shroud	0.13									.3594
	0.41									.3669
	0.62								-.0638	.1590
	0.81								-.0750	
	1.00								-.0866	.1214
Heat Shield		0.68								-.0527
		0.79								-.0563
		0.91								
		1.13	-.0299							
		1.25	-.0527							
		1.38	-.0527							
Star		0.00	.4275							
		0.12				.2310				.2310
		0.23				.1251				.1326

TABLE VII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 23.6$										
Nozzle 2	0.09		-.0545	-.0618	-.0631	-.0397	-.0657	-.0604		-.0581
	0.30		-.0618	-.0618	-.0631	-.0526	-.0604	-.0604	-.0604	-.0581
	0.51		-.0581	-.0618	-.0604	-.0578	-.0604	-.0604	-.0604	-.0581
	0.73		-.0581		-.0604		-.0604		-.0604	
Nozzle 3	0.09		-.0581	-.0581	-.0604		-.0631		-.0657	-.0618
	0.30		-.0581	-.0581	-.0604		-.0604		-.0631	-.0618
	0.51		-.0581		-.0604		-.0604		-.0604	
	0.73		-.0581				-.0604			
Nozzle 6	0.09		-.0568				-.0568		-.0568	
	0.30		-.0604				-.0568		-.0568	
	0.51		-.0568				-.0568		-.0604	
	0.73								-.0568	
Shroud	0.13									.3084
	0.41									.3160
	0.62								-.0680	.1389
	0.81								-.0716	
	1.00								-.0867	.1127
Heat Shield		0.68								-.0529
		0.79								-.0529
		0.91								
		1.13	-.0302							
		1.25	-.0568							
		1.38	-.0568							
Star		0.00	.4254							
		0.12				.2296				.2296
		0.23				.1278				.1317

TABLE VII. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 304$; $p_j/p_\infty = 23.6$										
Nozzle 2	0.09		-.0513	-.0583	-.0632	-.0421	-.0685	-.0658		-.0583
	0.30		-.0583	-.0583	-.0658	-.0553	-.0632	-.0606	-.0632	-.0583
	0.51		-.0583	-.0583	-.0632	-.0606	-.0632	-.0632	-.0606	-.0583
	0.73		-.0583		-.0632		-.0632		-.0632	
Nozzle 3	0.09		-.0583	-.0583	-.0606		-.0685		-.0658	-.0583
	0.30		-.0583	-.0583	-.0606		-.0658		-.0658	-.0583
	0.51		-.0583		-.0606		-.0632		-.0632	
	0.73		-.0583				-.0632			
Nozzle 6	0.09		-.0638				-.0678		-.0678	
	0.30		-.0714				-.0678		-.0678	
	0.51		-.0714				-.0678		-.0714	
	0.73								-.0714	
Shroud	0.13									.3291
	0.41									.3291
	0.62								-.0750	.1514
	0.81								-.0826	
	1.00								-.0902	.1175
Heat Shield		0.68								-.0602
		0.79								-.0602
		0.91								
		1.13	-.0375							
		1.25	-.0714							
		1.38	-.0714							
Star		0.00	.4236							
		0.12				.2271				.2235
		0.23				.1251				.1290

TABLE VIII

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1256	-.2969	-.2858	-.2784	-.2846	-.2932		.1253
	0.30		-.2443	-.2901	-.2858	-.2772	-.2871	-.2883	-.2549	.0439
	0.51		-.2833	-.2850	-.2871	-.2772	-.2858	-.2858	-.2846	-.2867
	0.73		-.2867		-.2846		-.2833		-.2833	
Nozzle 3	0.09		-.1035	.1576	-.0830		-.2871		-.2871	-.2986
	0.30		-.2325	.0983	-.2302		-.2895		-.2895	-.2901
	0.51		-.2884		-.2858		-.2871		-.2871	
	0.73		-.2884				-.2846			
Nozzle 6	0.09		-.2906				-.2942		-.2852	
	0.30		-.2871				-.2852		-.2871	
	0.51		-.2852				-.2852		-.2871	
	0.73								-.2871	
Shroud	0.13									.2302
	0.41									.2886
	0.62								-.3278	-.3260
	0.81								-.2728	
	1.00								-.2728	-.3578
Heat Shield		0.68								-.2835
		0.79								-.2835
		0.91								-.2871
		1.13	-.2852							
		1.25	-.2852							
		1.38	-.2852							
Star		0.00	-.2215							
		0.12				-.2232				-.2215
		0.23				-.2287				-.2232

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0996	-.3024	-.2868	-.2793	-.2868	-.2942		.1324
	0.30		-.2205	-.2939	-.2892	-.2781	-.2880	-.2892	-.2446	.0488
	0.51		-.2905	-.2905	-.2880	-.2781	-.2868	-.2868	-.2855	-.2922
	0.73		-.2905		-.2855		-.2855		-.2843	
Nozzle 3	0.09		-.0756	.1750	-.0849		-.2892		-.2892	-.3024
	0.30		-.2188	.1051	-.2137		-.2905		-.2905	-.2956
	0.51		-.2922		-.2880		-.2892		-.2892	
	0.73		-.2922				-.2868			
Nozzle 6	0.09		-.2917				-.2953		-.2900	
	0.30		-.2882				-.2882		-.2882	
	0.51		-.2882				-.2882		-.2882	
	0.73								-.2882	
Shroud	0.13									.2160
	0.41									.2745
	0.62								-.3307	-.3183
	0.81								-.2741	
	1.00								-.2741	-.3433
Heat Shield		0.68								-.2846
		0.79								-.2864
		0.91								-.2864
		1.13	-.2864							
		1.25	-.2864							
		1.38	-.2864							
Star		0.00	-.2296							
		0.12				-.2313				-.2296
		0.23				-.2367				-.2279

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0738	-.3049	-.2902	-.2853	-.2902	-.2989		.1115
	0.30		-.2166	-.2947	-.2902	-.2816	-.2927	-.2927	-.2370	.0384
	0.51		-.2896	-.2896	-.2902	-.2803	-.2902	-.2890	-.2878	-.2913
	0.73		-.2896		-.2878		-.2865		-.2878	
Nozzle 3	0.09		-.0483	.1556	-.1019		-.2865		-.2890	-.3032
	0.30		-.2063	.0995	-.2159		-.2940		-.2927	-.2947
	0.51		-.2930		-.2927		-.2927		-.2927	
	0.73		-.2913				-.2902			
Nozzle 6	0.09		-.2936				-.2936		-.2882	
	0.30		-.2901				-.2901		-.2918	
	0.51		-.2901				-.2918		-.2918	
	0.73								-.2918	
Shroud	0.13									.1837
	0.41									.2229
	0.62								-.3344	-.3149
	0.81								-.2741	
	1.00								-.2741	-.3344
Heat Shield		0.68								-.2865
		0.79								-.2882
		0.91								-.2882
		1.13	-.2901							
		1.25	-.2901							
		1.38	-.2882							
Star		0.00	-.2475							
		0.12				-.2492				-.2440
		0.23				-.2545				-.2421

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		.0181	-.3225	-.3007	-.2970	-.3007	-.3106		.1350
	0.30		-.1836	-.3089	-.3031	-.2932	-.3056	-.3093	-.2784	.0249
	0.51		-.3055	-.3038	-.3007	-.2945	-.3044	-.3031	-.2994	-.3072
	0.73		-.3038		-.2994		-.3007		-.2994	
Nozzle 3	0.09		.0571	.1995	-.1708		-.3019		-.3031	-.3225
	0.30		-.1819	.0960	-.2611		-.3044		-.3031	-.3072
	0.51		-.3072		-.3019		-.3031		-.3019	
	0.73		-.3055				-.3019			
Nozzle 6	0.09		-.3112				-.3129		-.2934	
	0.30		-.3076				-.3095		-.3112	
	0.51		-.3095				-.3112		-.3112	
	0.73								-.3129	
Shroud	0.13									.1861
	0.41									.1949
	0.62								-.3414	-.3095
	0.81								-.2917	
	1.00								-.2917	-.3290
Heat Shield		0.68								-.3059
		0.79								-.3076
		0.91								-.2988
		1.13	-.3076							
		1.25	-.3076							
		1.38	-.3059							
Star		0.00	-.2810							
		0.12				-.2810				-.2775
		0.23				-.2827				-.2756

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.1173	-.3275	-.3147	-.2998	-.3134	-.3207		.1267
	0.30		-.2434	-.3124	-.3134	-.3035	-.3110	-.3060	-.2543	.0577
	0.51		-.3006	-.3090	-.3085	-.2974	-.3073	-.3048	-.2986	-.2989
	0.73		-.3023		-.2986		-.2986		-.2986	
Nozzle 3	0.09		-.0936	.1637	-.0724		-.3220		-.3097	-.3275
	0.30		-.2267	.1132	-.2262		-.3172		-.3073	-.3107
	0.51		-.3057		-.3048		-.3147		-.3048	
	0.73		-.3040				-.3060			
Nozzle 6	0.09		-.3026				-.3026		-.3116	
	0.30		-.3026				-.3026		-.3133	
	0.51		-.2991				-.2974		-.3133	
	0.73								-.3097	
Shroud	0.13									.2328
	0.41									.2950
	0.62								-.3257	-.3292
	0.81								-.2724	
	1.00								-.2690	-.3558
Heat Shield		0.68								-.2955
		0.79								-.2974
		0.91								-.2955
		1.13	-.2991							
		1.25	-.2974							
		1.38	-.2974							
Star		0.00	-.2158							
		0.12				-.2601				-.2494
		0.23				-.2814				-.2779

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) M_∞ = 1.60 - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
α = -4°; q_∞ = 645; p_j/p_∞ = 3.4										
Nozzle 2	0.09		.0294	-.3532	-.3116	-.3104	-.3141	-.3116		.1351
	0.30		-.1871	-.3214	-.3166	-.3104	-.3116	-.3104	-.2870	.0328
	0.51		-.3179	-.3179	-.3176	-.3128	-.3104	-.3104	-.3054	-.3164
	0.73		-.3196		-.3176		-.3116		-.3116	
Nozzle 3	0.09		.0664	.2006	-.1706		-.3141		-.3153	-.3583
	0.30		-.1771	.1067	-.2563		-.3128		-.3153	-.3196
	0.51		-.3196		-.3104		-.3116		-.3166	
	0.73		-.3196				-.3128			
Nozzle 6	0.09		-.3156				-.3175		-.2839	
	0.30		-.3156				-.3175		-.3244	
	0.51		-.3227				-.3175		-.3210	
	0.73								-.3227	
Shroud	0.13									.1902
	0.41									.1974
	0.62								-.3387	-.3104
	0.81								-.2785	
	1.00								-.2785	-.3280
Heat Shield		0.68								-.3210
		0.79								-.3227
		0.91								-.3156
		1.13	-.3210							
		1.25	-.3227							
		1.38	-.3227							
Star		0.00	-.2289							
		0.12				-.2803				-.2520
		0.23				-.3032				-.2839

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.0531	-.3392	-.3135	-.3063	-.3148	-.3185		.1168
	0.30		-.2163	-.3140	-.3123	-.3025	-.3110	-.3087	-.2386	.0529
	0.51		-.3089	-.3106	-.3110	-.3001	-.3038	-.3025	-.3001	-.3022
	0.73		-.3106		-.3100		-.3001		-.3013	
Nozzle 3	0.09		-.0313	.1540	-.1023		-.3210		-.3148	-.3409
	0.30		-.2012	.1202	-.2128		-.3135		-.3110	-.3106
	0.51		-.3140		-.3063		-.3075		-.3100	
	0.73		-.3123				-.3063			
Nozzle 6	0.09		-.5580				-.5580		-.5580	
	0.30		-.5580				-.5580		-.5580	
	0.51		-.5580				-.5580		-.5580	
	0.73								-.5580	
Shroud	0.13									-.5580
	0.41									-.5580
	0.62								-.5580	-.5580
	0.81								-.5580	
	1.00								-.5580	-.5580
Heat Shield		0.68								-.5580
		0.79								-.5580
		0.91								-.5580
		1.13	-.5580							
		1.25	-.5580							
		1.38	-.5580							
Star		0.00	-.5580							
		0.12				-.5580				-.5580
		0.23				-.5580				-.5580

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.2308	-.1040	-.0699	-.0600	-.0727	-.0741		.4334
	0.30		.0400	-.0728	-.0685	-.0585	-.0670	-.0643	.0207	.3673
	0.51		-.0670	-.0690	-.0656	-.0544	-.0585	-.0585	-.0544	-.0593
	0.73		-.0690		-.0656		-.0529		-.0558	
Nozzle 3	0.09		.2620	.4782	.1778		-.0770		-.0699	-.1040
	0.30		.0596	.4372	.0489		-.0685		-.0656	-.0651
	0.51		-.0708		-.0614		-.0614		-.0629	
	0.73		-.0670				-.0600			
Nozzle 6	0.09		-.0643				-.0643		-.0663	
	0.30		-.0643				-.0663		-.0725	
	0.51		-.0683				-.0582		-.0683	
	0.73								-.0663	
Shroud	0.13									.5257
	0.41									.5686
	0.62								-.0930	-.0683
	0.81								-.0192	
	1.00								-.0192	-.0910
Heat Shield		0.68								-.0622
		0.79								-.0683
		0.91								-.0705
		1.13	-.0705							
		1.25	-.0683							
		1.38	-.0683							
Star		0.00	.0402							
		0.12				-.0130				-.0007
		0.23				-.0397				-.0335

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0265	-.2141	-.2116	-.2045	-.2116	-.2159		.1380
	0.30		-.1193	-.2121	-.2116	-.2032	-.2116	-.2130	-.1213	.1282
	0.51		-.2083	-.2083	-.2130	-.2074	-.2130	-.2130	-.2130	-.1753
	0.73		-.2083		-.2130		-.2116		-.2103	
Nozzle 3	0.09		-.0169	.1572	-.0069		-.2116		-.2116	-.2141
	0.30		-.1097	.1456	-.1001		-.2130		-.2130	-.2083
	0.51		-.2121		-.2159		-.2145		-.2145	
	0.73		-.2083				-.2130			
Nozzle 6	0.09		-.2128				-.2168		-.2148	
	0.30		-.2148				-.2148		-.2148	
	0.51		-.2128				-.2128		-.2128	
	0.73								-.2128	
Shroud	0.13									.2061
	0.41									.2061
	0.62								-.1925	-.2128
	0.81								-.1985	
	1.00								-.1985	-.2270
Heat Shield		0.68								-.2087
		0.79								-.2108
		0.91								-.1824
		1.13	-.2108							
		1.25	-.2108							
		1.38	-.2108							
Star		0.00	-.1537							
		0.12				-.1537				-.1537
		0.23				-.1579				-.1579

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12^{o} outward and engines 1 and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
			$\alpha = -4^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$							
Nozzle 2	0.09		-.0225	-.2241	-.2139	-.2110	-.2125	-.2166		.1342
	0.30		-.1106	-.2183	-.2139	-.2081	-.2139	-.2152	-.1173	.1184
	0.51		-.2143	-.2163	-.2139	-.2096	-.2139	-.2139	-.2152	-.1947
	0.73		-.2143		-.2139		-.2139		-.2125	
Nozzle 3	0.09		-.0049	.1615	-.0152		-.2139		-.2139	-.2241
	0.30		-.1144	.1420	-.0905		-.2152		-.2152	-.2183
	0.51		-.2183		-.2195		-.2166		-.2152	
	0.73		-.2183				-.2152			
Nozzle 6	0.09		-.2217				-.2279		-.2237	
	0.30		-.2217				-.2217		-.2217	
	0.51		-.2217				-.2217		-.2217	
	0.73								-.2195	
Shroud	0.13									.1887
	0.41									.1887
	0.62								-.2094	-.2195
	0.81								-.2094	
	1.00								-.2094	-.2279
Heat Shield		0.68								-.2195
		0.79								-.2195
		0.91								-.2032
		1.13	-.2217							
		1.25	-.2217							
		1.38	-.2217							
Star		0.00	-.1704							
		0.12				-.1724				-.1704
		0.23				-.1766				-.1704

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0054	-.2294	-.2160	-.2145	-.2160	-.2189		.0988
	0.30		-.1076	-.2236	-.2160	-.2131	-.2160	-.2174	-.1346	.0830
	0.51		-.2196	-.2216	-.2160	-.2131	-.2174	-.2160	-.2174	-.1941
	0.73		-.2196		-.2160		-.2145		-.2145	
Nozzle 3	0.09		.0043	.1379	-.0350		-.2160		-.2160	-.2294
	0.30		-.0998	.1203	-.1091		-.2174		-.2174	-.2216
	0.51		-.2236		-.2216		-.2174		-.2174	
	0.73		-.2236				-.2174			
Nozzle 6	0.09		-.2218				-.2238		-.2238	
	0.30		-.2218				-.2218		-.2218	
	0.51		-.2218				-.2218		-.2218	
	0.73								-.2218	
Shroud	0.13									.1517
	0.41									.1455
	0.62								-.2156	-.2196
	0.81								-.2136	
	1.00								-.2136	-.2299
Heat Shield		0.68								-.2176
		0.79								-.2196
		0.91								-.2115
		1.13	-.2196							
		1.25	-.2196							
		1.38	-.2196							
Star		0.00	-.1807							
		0.12				-.1828				-.1787
		0.23				-.1848				-.1787

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		.0641	-.2489	-.2313	-.2270	-.2299	-.2341		.1055
	0.30		-.0677	-.2389	-.2313	-.2255	-.2328	-.2341	-.2156	.0760
	0.51		-.2351	-.2351	-.2328	-.2284	-.2328	-.2328	-.2313	-.2194
	0.73		-.2351		-.2313		-.2313		-.2313	
Nozzle 3	0.09		.0798	.1448	-.1197		-.2313		-.2313	-.2529
	0.30		-.0657	.1075	-.1855		-.2341		-.2341	-.2389
	0.51		-.2409		-.2341		-.2341		-.2341	
	0.73		-.2389				-.2341			
Nozzle 6	0.09		-.2379				-.2420		-.2400	
	0.30		-.2400				-.2420		-.2420	
	0.51		-.2400				-.2400		-.2400	
	0.73								-.2400	
Shroud	0.13									.1506
	0.41									.1423
	0.62								-.2400	-.2297
	0.81								-.2339	
	1.00								-.2339	-.2440
Heat Shield		0.68								-.2317
		0.79								-.2339
		0.91								-.2216
		1.13	-.2379							
		1.25	-.2400							
		1.38	-.2400							
Star		0.00	-.2009							
		0.12				-.2051				-.1968
		0.23				-.2071				-.1968

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.0469	-.1950	-.1900	-.1742	-.1914	-.1914		.1389
	0.30		-.1359	-.1891	-.1914	-.1856	-.1900	-.1885	-.1368	.0856
	0.51		-.1793	-.1891	-.1929	-.1827	-.1900	-.1885	-.1842	-.1753
	0.73		-.1813		-.1885		-.1842		-.1842	
Nozzle 3	0.09		-.0311	.1646	-.0215		-.1943		-.1929	-.1950
	0.30		-.1279	.1212	-.1151		-.1929		-.1929	-.1873
	0.51		-.1853		-.1871		-.1914		-.1929	
	0.73		-.1853				-.1856			
Nozzle 6	0.09		-.1643				-.1726		-.1827	
	0.30		-.1726				-.1746		-.1766	
	0.51		-.1684				-.1704		-.1788	
	0.73								-.1766	
Shroud	0.13									.2070
	0.41									.2070
	0.62								-.1911	-.1827
	0.81								-.1541	
	1.00								-.1541	-.2012
Heat Shield		0.68								-.1623
		0.79								-.1623
		0.91								-.1746
		1.13	-.1726							
		1.25	-.1704							
		1.38	-.1684							
Star		0.00	-.0147							
		0.12				-.1028				-.0905
		0.23				-.1357				-.1295

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.0416	-.2083	-.1955	-.1825	-.1940	-.2013		.1331
	0.30		-.1309	-.1984	-.1955	-.1897	-.1955	-.1955	-.1306	.0734
	0.51		-.1864	-.1944	-.1955	-.1868	-.1940	-.1940	-.1868	-.1844
	0.73		-.1884		-.1926		-.1868		-.1868	
Nozzle 3	0.09		-.0217	.1687	-.0237		-.1955		-.1955	-.2043
	0.30		-.1329	.1092	-.1060		-.1969		-.1969	-.1964
	0.51		-.1904		-.1897		-.1955		-.1955	
	0.73		-.1904				-.1868			
Nozzle 6	0.09		-.1844				-.1825		-.1969	
	0.30		-.1886				-.1886		-.1928	
	0.51		-.1866				-.1844		-.1969	
	0.73								-.1928	
Shroud	0.13									.1919
	0.41									.1877
	0.62								-.2094	-.1949
	0.81								-.1720	
	1.00								-.1720	-.2136
Heat Shield		0.68								-.1825
		0.79								-.1825
		0.91								-.1825
		1.13	-.1928							
		1.25	-.1908							
		1.38	-.1886							
Star		0.00	-.0264							
		0.12				-.1221				-.1054
		0.23				-.1533				-.1470

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.0282	-.2076	-.1951	-.1850	-.1937	-.2009		.0955
	0.30		-.1318	-.1976	-.1951	-.1893	-.1951	-.1937	-.1445	.0356
	0.51		-.1877	-.1957	-.1937	-.1850	-.1922	-.1922	-.1864	-.1877
	0.73		-.1917		-.1922		-.1850		-.1864	
Nozzle 3	0.09		-.0123	.1373	-.0476		-.1937		-.1951	-.2096
	0.30		-.1278	.0835	-.1257		-.1951		-.1951	-.1976
	0.51		-.1957		-.1893		-.1922		-.1951	
	0.73		-.1957				-.1864			
Nozzle 6	0.09		-.1926				-.1906		-.2051	
	0.30		-.1926				-.1926		-.1967	
	0.51		-.1926				-.1906		-.1989	
	0.73								-.1967	
Shroud	0.13									.1448
	0.41									.1385
	0.62								-.2197	-.2009
	0.81								-.1801	
	1.00								-.1779	-.2156
Heat Shield		0.68								-.1926
		0.79								-.1926
		0.91								-.1884
		1.13	-.1989							
		1.25	-.1967							
		1.38	-.1967							
Star		0.00	-.0302							
		0.12				-.1260				-.1092
		0.23				-.1571				-.1552

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.2455	-.0632	-.0418	-.0455	-.0510	-.0474		.3390
	0.30		.0531	-.0506	-.0455	-.0418	-.0510	-.0510	-.0455	.2200
	0.51		-.0455	-.0506	-.0474	-.0418	-.0455	-.0492	-.0400	-.0455
	0.73		-.0531		-.0474		-.0382		-.0400	
Nozzle 3	0.09		.2784	.3972	.0372		-.0492		-.0492	-.0708
	0.30		.0506	.2758	-.0216		-.0510		-.0510	-.0506
	0.51		-.0506		-.0474		-.0492		-.0510	
	0.73		-.0506				-.0382			
Nozzle 6	0.09		-.0492				-.0439		-.0598	
	0.30		-.0517				-.0492		-.0545	
	0.51		-.0517				-.0464		-.0545	
	0.73								-.0517	
Shroud	0.13									.3937
	0.41									.3832
	0.62								-.0915	-.0650
	0.81								-.0306	
	1.00								-.0278	-.0784
Heat Shield		0.68								-.0517
		0.79								-.0545
		0.91								-.0333
		1.13	-.0545							
		1.25	-.0545							
		1.38	-.0545							
Star		0.00	.1683							
		0.12				.0464				.0782
		0.23				.0011				.0145

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0099	-.1697	-.1667	-.1557	-.1686	-.1686		.1185
	0.30		-.0381	-.1672	-.1649	-.1575	-.1686	-.1686	-.0579	.1286
	0.51		-.1647	-.1647	-.1667	-.1612	-.1686	-.1686	-.1686	-.1091
	0.73		-.1647		-.1686		-.1686		-.1686	
Nozzle 3	0.09		.0149	.1337	.0103		-.1686		-.1706	-.1672
	0.30		-.0381	.1337	-.0285		-.1686		-.1667	-.1647
	0.51		-.1672		-.1725		-.1706		-.1686	
	0.73		-.1672				-.1686			
Nozzle 6	0.09		-.1610				-.1610		-.1610	
	0.30		-.1610				-.1610		-.1610	
	0.51		-.1610				-.1610		-.1610	
	0.73								-.1637	
Shroud	0.13									.1633
	0.41									.1396
	0.62								-.1320	-.1504
	0.81								-.1557	
	1.00								-.1557	-.1557
Heat Shield		0.68								-.1610
		0.79								-.1610
		0.91								-.0767
		1.13	-.1610							
		1.25	-.1610							
		1.38	-.1610							
Star		0.00	-.1187							
		0.12				-.1187				-.1187
		0.23				-.1187				-.1187

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0128	-.1746	-.1668	-.1595	-.1686	-.1707		.1168
	0.30		-.0404	-.1695	-.1668	-.1576	-.1686	-.1668	-.0617	.1344
	0.51		-.1695	-.1695	-.1668	-.1650	-.1686	-.1668	-.1686	-.1289
	0.73		-.1695		-.1686		-.1686		-.1686	
Nozzle 3	0.09		.0204	.1395	.0046		-.1650		-.1686	-.1721
	0.30		-.0480	.1370	-.0360		-.1686		-.1686	-.1695
	0.51		-.1721		-.1725		-.1707		-.1707	
	0.73		-.1721				-.1686			
Nozzle 6	0.09		-.1636				-.1636		-.1636	
	0.30		-.1636				-.1661		-.1636	
	0.51		-.1661				-.1661		-.1661	
	0.73								-.1636	
Shroud	0.13									.1636
	0.41									.1294
	0.62								-.1478	-.1503
	0.81								-.1608	
	1.00								-.1608	-.1556
Heat Shield		0.68								-.1636
		0.79								-.1636
		0.91								-.0897
		1.13	-.1636							
		1.25	-.1661							
		1.38	-.1661							
Star		0.00	-.1266							
		0.12				-.1266				-.1239
		0.23				-.1344				-.1266

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0202	-.1772	-.1669	-.1614	-.1687	-.1708		.0885
	0.30		-.0227	-.1721	-.1687	-.1614	-.1708	-.1708	-.0805	.1164
	0.51		-.1696	-.1721	-.1708	-.1669	-.1708	-.1708	-.1708	-.1366
	0.73		-.1696		-.1708		-.1708		-.1687	
Nozzle 3	0.09		.0252	.1139	-.0160		-.1687		-.1708	-.1747
	0.30		-.0227	.1215	-.0619		-.1687		-.1708	-.1696
	0.51		-.1747		-.1726		-.1726		-.1708	
	0.73		-.1721				-.1708			
Nozzle 6	0.09		-.1637				-.1662		-.1637	
	0.30		-.1637				-.1637		-.1637	
	0.51		-.1662				-.1662		-.1662	
	0.73								-.1662	
Shroud	0.13									.1396
	0.41									.1132
	0.62								-.1478	-.1556
	0.81								-.1609	
	1.00								-.1609	-.1584
Heat Shield		0.68								-.1662
		0.79								-.1662
		0.91								-.0951
		1.13	-.1662							
		1.25	-.1662							
		1.38	-.1662							
Star		0.00	-.1426							
		0.12				-.1451				-.1398
		0.23				-.1478				-.1398

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		.0674	-.1774	-.1801	-.1728	-.1838	-.1820		.1029
	0.30		.0144	-.1774	-.1801	-.1689	-.1820	-.1838	-.1452	.1079
	0.51		-.1749	-.1824	-.1820	-.1746	-.1820	-.1820	-.1820	-.1445
	0.73		-.1824		-.1820		-.1820		-.1820	
Nozzle 3	0.09		.0699	.1255	-.0864		-.1820		-.1820	-.1824
	0.30		.0194	.1079	-.1250		-.1820		-.1838	-.1774
	0.51		-.1874		-.1838		-.1820		-.1838	
	0.73		-.1849				-.1838			
Nozzle 6	0.09		-.1717				-.1822		-.1822	
	0.30		-.1822				-.1822		-.1822	
	0.51		-.1822				-.1822		-.1822	
	0.73								-.1822	
Shroud	0.13									.1568
	0.41									.1253
	0.62								-.1559	-.1664
	0.81								-.1692	
	1.00								-.1692	-.1797
Heat Shield		0.68								-.1822
		0.79								-.1822
		0.91								-.0981
		1.13	-.1822							
		1.25	-.1849							
		1.38	-.1822							
Star		0.00	-.1534							
		0.12				-.1534				-.1534
		0.23				-.1559				-.1506

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.0211	-.1195	-.1120	-.1028	-.1120	-.1138		.1326
	0.30		-.0866	-.1170	-.1138	-.1083	-.1138	-.1138	-.0882	.0621
	0.51		-.1069	-.1145	-.1120	-.1047	-.1102	-.1102	-.1065	-.1069
	0.73		-.1095		-.1102		-.1065		-.1065	
Nozzle 3	0.09		-.0085	.1502	-.0092		-.1138		-.1138	-.1145
	0.30		-.0891	.0847	-.0772		-.1138		-.1138	-.1145
	0.51		-.1120		-.1065		-.1120		-.1138	
	0.73		-.1120				-.1102			
Nozzle 6	0.09		-.1010				-.1037		-.1115	
	0.30		-.1037				-.1037		-.1088	
	0.51		-.1037				-.1037		-.1063	
	0.73								-.1063	
Shroud	0.13									.1720
	0.41									.1406
	0.62								-.1246	-.1115
	0.81								-.0985	
	1.00								-.0957	-.1193
Heat Shield		0.68								-.0932
		0.79								-.0932
		0.91								-.1010
		1.13	-.1037							
		1.25	-.1037							
		1.38	-.1037							
Star		0.00	.1667							
		0.12				.0302				.0355
		0.23				-.0302				-.0275

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.0177	-.1215	-.1084	-.1029	-.1084	-.1121		.1316
	0.30		-.0912	-.1215	-.1121	-.1084	-.1103	-.1103	-.0864	.0481
	0.51		-.1114	-.1190	-.1121	-.1048	-.1084	-.1084	-.1048	-.1114
	0.73		-.1139		-.1084		-.1048		-.1048	
Nozzle 3	0.09		-.0101	.1568	-.0112		-.1084		-.1121	-.1190
	0.30		-.1013	.0683	-.0736		-.1103		-.1121	-.1190
	0.51		-.1164		-.1084		-.1084		-.1121	
	0.73		-.1164				-.1048			
Nozzle 6	0.09		-.1057				-.1057		-.1215	
	0.30		-.1137				-.1109		-.1190	
	0.51		-.1109				-.1109		-.1162	
	0.73								-.1162	
Shroud	0.13									.1657
	0.41									.1341
	0.62								-.1373	-.1190
	0.81								-.1084	
	1.00								-.1057	-.1268
Heat Shield		0.68								-.1057
		0.79								-.1057
		0.91								-.1057
		1.13	-.1162							
		1.25	-.1162							
		1.38	-.1137							
Star		0.00	.1579							
		0.12				.0234				.0261
		0.23				-.0399				-.0371

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12^{o} outward and engines 1 and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 11.4$										
Nozzle 2	0.09		-.0112	-.1222	-.1105	-.1068	-.1105	-.1123		.0945
	0.30		-.0844	-.1222	-.1142	-.1105	-.1123	-.1123	-.1032	.0366
	0.51		-.1121	-.1197	-.1142	-.1087	-.1105	-.1105	-.1068	-.1146
	0.73		-.1171		-.1123		-.1050		-.1068	
Nozzle 3	0.09		-.0011	.1297	-.0355		-.1123		-.1142	-.1222
	0.30		-.0920	.0467	-.0904		-.1123		-.1142	-.1197
	0.51		-.1197		-.1105		-.1105		-.1142	
	0.73		-.1197				-.1068			
Nozzle 6	0.09		-.1137				-.1137		-.1242	
	0.30		-.1190				-.1137		-.1215	
	0.51		-.1190				-.1137		-.1215	
	0.73								-.1215	
Shroud	0.13									.1341
	0.41									.1208
	0.62								-.1478	-.1215
	0.81								-.1162	
	1.00								-.1162	-.1295
Heat Shield		0.68								-.1137
		0.79								-.1137
		0.91								-.1137
		1.13	-.1215							
		1.25	-.1215							
		1.38	-.1215							
Star		0.00	.1551							
		0.12				.0156				.0208
		0.23				-.0451				-.0426

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.2294	.0007	.0296	.0191	.0165	.0165		.3597
	0.30		.0842	.0007	.0109	.0109	.0135	.0109	.0135	.2146
	0.51		.0115	.0007	.0082	.0135	.0165	.0109	.0165	.0043
	0.73		.0043		.0082		.0244		.0165	
Nozzle 3	0.09		.2511	.3999	.0428		.0135		.0082	.0007
	0.30		.0661	.2402	.0191		.0109		.0082	.0007
	0.51		.0007		.0135		.0135		.0056	
	0.73		.0043				.0217			
Nozzle 6	0.09		.0230				.0118		.0043	
	0.30		.0079				.0079		.0003	
	0.51		.0079				.0079		.0043	
	0.73								.0043	
Shroud	0.13									.4008
	0.41									.3669
	0.62								-.0451	.0003
	0.81								.0118	
	1.00								.0155	-.0072
Heat Shield		0.68								.0155
		0.79								.0191
		0.91								.0306
		1.13	.0003							
		1.25	.0043							
		1.38	.0043							
Star		0.00	.4084							
		0.12				.2119				.2156
		0.23				.1175				.1287

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0105	-.1337	-.1130	-.1261	-.1314	-.1314		.0936
	0.30		-.0145	-.1301	-.1288	-.1288	-.1314	-.1314	-.0240	.1081
	0.51		-.1265	-.1301	-.1288	-.1288	-.1314	-.1314	-.1314	-.0723
	0.73		-.1301		-.1314		-.1314		-.1314	
Nozzle 3	0.09		.0105	.1117	.0207		-.1314		-.1314	-.1337
	0.30		-.0145	.1081	.0049		-.1288		-.1288	-.1301
	0.51		-.1337		-.1314		-.1314		-.1314	
	0.73		-.1337				-.1314			
Nozzle 6	0.09		-.1097				-.1173		-.1173	
	0.30		-.1209				-.1209		-.1173	
	0.51		-.1173				-.1209		-.1173	
	0.73								-.1209	
Shroud	0.13									.1412
	0.41									.0815
	0.62								-.0874	-.0985
	0.81								-.1061	
	1.00								-.1097	-.0985
Heat Shield		0.68								-.1133
		0.79								-.1173
		0.91								.0401
		1.13	-.1097							
		1.25	-.1133							
		1.38	-.1133							
Star		0.00	-.0946							
		0.12				-.0946				-.0946
		0.23				-.0946				-.0946

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0282	-.1301	-.1182	-.1261	-.1314	-.1314		.1150
	0.30		-.0039	-.1265	-.1288	-.1288	-.1314	-.1314	-.0345	.1186
	0.51		-.1265	-.1301	-.1314	-.1314	-.1314	-.1314	-.1314	-.0979
	0.73		-.1265		-.1314		-.1314		-.1314	
Nozzle 3	0.09		.0319	.1330	.0204		-.1314		-.1314	-.1301
	0.30		-.0148	.1186	-.0108		-.1314		-.1314	-.1228
	0.51		-.1301		-.1314		-.1314		-.1314	
	0.73		-.1301				-.1314			
Nozzle 6	0.09		-.1173				-.1209		-.1209	
	0.30		-.1209				-.1209		-.1209	
	0.51		-.1245				-.1245		-.1245	
	0.73								-.1245	
Shroud	0.13									.1455
	0.41									.0930
	0.62								-.0985	-.1022
	0.81								-.1133	
	1.00								-.1133	-.1058
Heat Shield		0.68								-.1209
		0.79								-.1245
		0.91								.0292
		1.13	-.1173							
		1.25	-.1209							
		1.38	-.1209							
Star		0.00	-.1022							
		0.12				-.1022				-.1022
		0.23				-.1058				-.1022

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0134	-.1341	-.1161	-.1239	-.1292	-.1292		.0816
	0.30		.0239	-.1305	-.1266	-.1266	-.1292	-.1292	-.0479	.1029
	0.51		-.1161	-.1341	-.1292	-.1292	-.1292	-.1292	-.1315	-.0836
	0.73		-.1305		-.1292		-.1292		-.1315	
Nozzle 3	0.09		.0134	.1066	.0043		-.1266		-.1292	-.1305
	0.30		.0207	.1138	-.0298		-.1292		-.1292	-.1305
	0.51		-.1305		-.1292		-.1315		-.1315	
	0.73		-.1305				-.1341			
Nozzle 6	0.09		-.1210				-.1285		-.1285	
	0.30		-.1321				-.1321		-.1321	
	0.51		-.1321				-.1321		-.1321	
	0.73								-.1285	
Shroud	0.13									.1262
	0.41									.0888
	0.62								-.1098	-.1134
	0.81								-.1210	
	1.00								-.1174	-.1174
Heat Shield		0.68								-.1321
		0.79								-.1361
		0.91								.0249
		1.13	-.1321							
		1.25	-.1361							
		1.38	-.1361							
Star		0.00	-.1098							
		0.12				-.1059				-.1059
		0.23				-.1174				-.1285

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		.0482	-.1197	-.1266	-.1318	-.1344	-.1344		.0839
	0.30		.0482	-.1305	-.1318	-.1318	-.1318	-.1318	-.0951	.0839
	0.51		-.1164	-.1341	-.1318	-.1318	-.1318	-.1318	-.1344	-.0770
	0.73		-.1305		-.1344		-.1344		-.1344	
Nozzle 3	0.09		.0482	.1088	-.0666		-.1344		-.1344	-.1233
	0.30		.0482	.0911	-.0797		-.1344		-.1344	-.1341
	0.51		-.1305		-.1344		-.1344		-.1344	
	0.73		-.1341				-.1344			
Nozzle 6	0.09		-.1138				-.1249		-.1285	
	0.30		-.1285				-.1285		-.1285	
	0.51		-.1285				-.1285		-.1285	
	0.73								-.1325	
Shroud	0.13									.1475
	0.41									.1029
	0.62								-.1098	-.1138
	0.81								-.1174	
	1.00								-.1174	-.1174
Heat Shield		0.68								-.1285
		0.79								-.1285
		0.91								.0207
		1.13	-.1174							
		1.25	-.1285							
		1.38	-.1285							
Star		0.00	-.1285							
		0.12				-.1285				-.1285
		0.23				-.1285				-.1249

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.4$										
Nozzle 2	0.09		-.0092	-.0521	-.0380	-.0302	-.0380	-.0407		.1049
	0.30		-.0413	-.0485	-.0380	-.0354	-.0380	-.0407	-.0380	.0121
	0.51		-.0413	-.0485	-.0407	-.0354	-.0354	-.0407	-.0380	-.0449
	0.73		-.0449		-.0380		-.0354		-.0380	
Nozzle 3	0.09		-.0092	.1266	-.0043		-.0354		-.0407	-.0449
	0.30		-.0485	.0302	-.0380		-.0380		-.0407	-.0485
	0.51		-.0449		-.0407		-.0380		-.0407	
	0.73		-.0449				-.0380			
Nozzle 6	0.09		-.0282				-.0393		-.0357	
	0.30		-.0357				-.0357		-.0357	
	0.51		-.0321				-.0357		-.0357	
	0.73								-.0321	
Shroud	0.13									.1466
	0.41									.0944
	0.62								-.0544	-.0321
	0.81								-.0393	
	1.00								-.0321	-.0357
Heat Shield		0.68								-.0134
		0.79								-.0134
		0.91								.0200
		1.13	-.0170							
		1.25	-.0170							
		1.38	-.0170							
Star		0.00	.4259							
		0.12				.2285				.2321
		0.23				.1318				.1393

TABLE VIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		-.0095	-.0485	-.0380	-.0305	-.0380	-.0407		.1154
	0.30		-.0380	-.0485	-.0407	-.0380	-.0380	-.0407	-.0407	-.0059
	0.51		-.0380	-.0416	-.0407	-.0354	-.0354	-.0380	-.0380	-.0416
	0.73		-.0452		-.0380		-.0354		-.0407	
Nozzle 3	0.09		-.0131	.1331	-.0095		-.0380		-.0407	-.0416
	0.30		-.0452	.0082	-.0407		-.0407		-.0407	-.0416
	0.51		-.0416		-.0407		-.0380		-.0380	
	0.73		-.0452				-.0380			
Nozzle 6	0.09		-.0390				-.0426		-.0390	
	0.30		-.0390				-.0390		-.0390	
	0.51		-.0390				-.0390		-.0390	
	0.73								-.0390	
Shroud	0.13									.1475
	0.41									.0990
	0.62								-.0652	-.0390
	0.81								-.0354	
	1.00								-.0354	-.0466
Heat Shield		0.68								-.0279
		0.79								-.0239
		0.91								.0059
		1.13	-.0354							
		1.25	-.0354							
		1.38	-.0354							
Star		0.00	.4164							
		0.12				.2147				.2147
		0.23				.1216				.1252

TABLE VIII. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.3$										
Nozzle 2	0.09		-.0030	-.0420	-.0387	-.0334	-.0387	-.0413		.0859
	0.30		-.0384	-.0456	-.0387	-.0387	-.0387	-.0387	-.0361	.0043
	0.51		-.0384	-.0420	-.0387	-.0361	-.0361	-.0387	-.0387	-.0420
	0.73		-.0420		-.0387		-.0361		-.0387	
Nozzle 3	0.09		-.0030	.1249	-.0230		-.0387		-.0387	-.0384
	0.30		-.0420	.0079	-.0387		-.0387		-.0387	-.0384
	0.51		-.0420		-.0387		-.0361		-.0387	
	0.73		-.0420				-.0361			
Nozzle 6	0.09		-.0357				-.0433		-.0433	
	0.30		-.0433				-.0433		-.0433	
	0.51		-.0393				-.0433		-.0433	
	0.73								-.0433	
Shroud	0.13									.1282
	0.41									.0908
	0.62								-.0544	-.0433
	0.81								-.0393	
	1.00								-.0357	-.0469
Heat Shield		0.68								-.0282
		0.79								-.0282
		0.91								.0016
		1.13	-.0357							
		1.25	-.0357							
		1.38	-.0357							
Star		0.00	.4147							
		0.12				.2138				.2210
		0.23				.1167				.1282

TABLE IX

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0393	-.2984	-.2731	-.2161	-.2782	-.2755		.2118
	0.30		.0741	-.2881	-.2376	-.2084	-.2426	-.2655	.0754	.2536
	0.51		.0830	-.2794	-.2237	-.2110	-.2249	-.2704	.0906	.2797
	0.73		.0028		-.2147		-.2186		.0348	
	0.94		-.1729							
Nozzle 3	0.09		.0551	.2379	.0754		-.2731		-.2591	-.3107
	0.30		.0777	.2658	.0930		-.2376		-.2364	-.3054
	0.51		.0864		.1145		-.2237		-.2249	
	0.73		-.0006				-.2186			
	0.94						-.2161			
Nozzle 6	0.09		-.2175				-.2175		-.2210	
	0.30		-.2175				-.2193		-.2210	
	0.51		-.2175				-.2193		-.2229	
	0.73		-.2229							
Star		0.00	-.1591							
		0.12				-.1647				-.1573
		0.23				-.1701				-.1573
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		.0336	-.3073	-.3385	-.2307	-.3436	-.2941		.1980
	0.30		.0648	-.3037	-.2953	-.2370	-.2992	-.2902	.0625	.2429
	0.51		.0752	-.3159	-.2663	-.2434	-.2726	-.3017	.0777	.2723
	0.73		.0388		-.2522		-.2536		.0486	
	0.94		-.1824							
Nozzle 3	0.09		.0509	.2412	.0740		-.3271		-.3195	-.3193
	0.30		.0733	.2689	.0916		-.2902		-.2890	-.3210
	0.51		.0873		.1157		-.2675		-.2663	
	0.73		.0422				-.2522			
	0.94						-.2458			
Nozzle 6	0.09		-.2120				-.2228		-.2372	
	0.30		-.2282				-.2336		-.2390	
	0.51		-.2372				-.2426		-.2444	
	0.73		-.2444							
Star		0.00	-.1795							
		0.12				-.2047				-.2065
		0.23				-.2245				-.2263

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12^{o} outward and engines 1 and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0533	-.2819	-.2966	-.2343	-.2952	-.3105		.1907
	0.30		.0795	-.2766	-.2635	-.2279	-.2584	-.3015	.0336	.2375
	0.51		.0708	-.2819	-.2445	-.2318	-.2445	-.3015	.0501	.2411
	0.73		-.0213		-.2343		-.2369		.0082	
	0.94		-.1809							
Nozzle 3	0.09		.0725	.2411	.0489		-.2978		-.2813	-.2992
	0.30		.0847	.2653	.0717		-.2686		-.2547	-.3009
	0.51		.0778		.0908		-.2508		-.2418	
	0.73		-.0353				-.2381			
	0.94						-.2330			
Nozzle 6	0.09		-.2208				-.2281		-.2316	
	0.30		-.2281				-.2298		-.2335	
	0.51		-.2298				-.2316		-.2335	
	0.73		-.2335							
Star		0.00	-.1899							
		0.12				-.1936				-.1863
		0.23				-.1971				-.1863
$\alpha = -2^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		.0526	-.2867	-.3362	-.2360	-.3335	-.3196		.1883
	0.30		.0804	-.2831	-.3031	-.2435	-.2967	-.3108	.0278	.2284
	0.51		.0700	-.3092	-.2728	-.2474	-.2728	-.3133	.0456	.2423
	0.73		.0091		-.2562		-.2574		.0088	
	0.94		-.1953							
Nozzle 3	0.09		.0700	.2423	.0444		-.3284		-.3259	-.3057
	0.30		.0804	.2666	.0646		-.2955		-.2918	-.3109
	0.51		.0787		.0875		-.2740		-.2689	
	0.73		.0005				-.2587			
	0.94						-.2499			
Nozzle 6	0.09		-.2282				-.2336		-.2519	
	0.30		-.2409				-.2465		-.2519	
	0.51		-.2500				-.2537		-.2556	
	0.73		-.2556							
Star		0.00	-.1917							
		0.12				-.2210				-.2210
		0.23				-.2409				-.2409

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.1113	-.2608	-.3051	-.2555	-.2937	-.3357		.1912
	0.30		.1373	-.2625	-.2797	-.2467	-.2580	-.3343	-.0280	.2294
	0.51		.1130	-.2816	-.2580	-.2467	-.2517	-.3267	-.0178	.2259
	0.73		-.0192		-.2492		-.2492		-.0395	
	0.94		-.1920							
Nozzle 3	0.09		.1130	.2259	-.0014		-.3102		-.2975	-.2748
	0.30		.1181	.2486	.0203		-.2822		-.2721	-.2834
	0.51		.0921		.0394		-.2658		-.2543	
	0.73		-.0453				-.2517			
	0.94						-.2467			
Nozzle 6	0.09		-.2425				-.2425		-.2500	
	0.30		-.2481				-.2462		-.2517	
	0.51		-.2500				-.2481		-.2517	
	0.73		-.2517							
Star		0.00	-.2171							
		0.12				-.2171				-.2134
		0.23				-.2225				-.2152
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		.1036	-.2594	-.3336	-.2398	-.3221	-.3514		.1869
	0.30		.1384	-.2594	-.3007	-.2449	-.2892	-.3323	-.0243	.2217
	0.51		.1141	-.2940	-.2702	-.2487	-.2690	-.3221	-.0243	.2183
	0.73		.0063		-.2563		-.2588		-.0445	
	0.94		-.2081							
Nozzle 3	0.09		.1105	.2234	-.0028		-.3221		-.3221	-.2837
	0.30		.1175	.2459	.0201		-.2905		-.2905	-.2923
	0.51		.1002		.0403		-.2702		-.2690	
	0.73		-.0301				-.2575			
	0.94						-.2500			
Nozzle 6	0.09		-.2325				-.2343		-.2543	
	0.30		-.2452				-.2470		-.2524	
	0.51		-.2524				-.2524		-.2543	
	0.73		-.2580							
Star		0.00	-.1943							
		0.12				-.2215				-.2215
		0.23				-.2433				-.2433

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.1966	-.2015	-.3376	-.3059	-.3084	-.3388		.1740
	0.30		.2259	-.2171	-.3439	-.2907	-.2870	-.3592	-.1399	.2069
	0.51		.1896	-.2880	-.3110	-.2857	-.2857	-.3528	-.1513	.1983
	0.73		.0338		-.2907		-.2831		-.2007	
	0.94		-.2058							
Nozzle 3	0.09		.1999	.2208	-.1134		-.3186		-.3427	-.2188
	0.30		.2103	.2294	-.1044		-.2870		-.3363	-.2448
	0.51		.1810		-.1032		-.2831		-.3047	
	0.73		.0218				-.2857			
	0.94						-.2831			
Nozzle 6	0.09		-.2808				-.2698		-.2862	
	0.30		-.2825				-.2771		-.2862	
	0.51		-.2825				-.2808		-.2843	
	0.73		-.2862							
Star		0.00	-.2481							
		0.12				-.2481				-.2481
		0.23				-.2481				-.2518
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		.1978	-.1888	-.3553	-.2589	-.2793	-.3743		.1752
	0.30		.2255	-.2079	-.3324	-.2640	-.2678	-.3653	-.1334	.2046
	0.51		.1909	-.2772	-.2956	-.2666	-.2666	-.3210	-.1499	.2012
	0.73		.0278		-.2754		-.2666		-.2031	
	0.94		-.2184							
Nozzle 3	0.09		.2046	.2221	-.1068		-.2919		-.3527	-.2201
	0.30		.2116	.2358	-.0966		-.2729		-.3173	-.2494
	0.51		.1839		-.1017		-.2691		-.2842	
	0.73		.0036				-.2666			
	0.94						-.2627			
Nozzle 6	0.09		-.2490				-.2525		-.2708	
	0.30		-.2616				-.2616		-.2670	
	0.51		-.2670				-.2670		-.2689	
	0.73		-.2708							
Star		0.00	-.2035							
		0.12				-.2398				-.2289
		0.23				-.2581				-.2581

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^o$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0411	-.1906	-.2339	-.2058	-.2310	-.2042		.1772
	0.30		.0594	-.1906	-.2176	-.1999	-.2087	-.2087	.0466	.1995
	0.51		.0573	-.2149	-.2013	-.1984	-.1999	-.2310	.0524	.2118
	0.73		.0268		-.1968		-.1968		.0286	
	0.94		-.1272							
Nozzle 3	0.09		.0471	.2138	.0643		-.2370		-.2354	-.1946
	0.30		.0533	.2220	.0672		-.2133		-.2133	-.2008
	0.51		.0573		.0777		-.1999		-.2013	
	0.73		.0208				-.1968			
	0.94						-.1939			
Nozzle 6	0.09		-.1863				-.1863		-.1928	
	0.30		-.1950				-.1950		-.1950	
	0.51		-.1991				-.1991		-.1991	
	0.73		-.1991							
Star		0.00	-.1500							
		0.12				-.1500				-.1479
		0.23				-.1544				-.1500
$\alpha = 0^o$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		.0646	-.1788	-.1543	-.1395	-.1675	-.1809		.1923
	0.30		.0849	-.1706	-.1469	-.1440	-.1498	-.1721	.0707	.2187
	0.51		.0686	-.1645	-.1440	-.1424	-.1440	-.1692	.0619	.2187
	0.73		-.0246		-.1409		-.1424		-.0078	
	0.94		-.1321							
Nozzle 3	0.09		.0747	.2267	.0885		-.1617		-.1543	-.1827
	0.30		.0787	.2348	.0915		-.1498		-.1484	-.1788
	0.51		.0545		.0811		-.1440		-.1424	
	0.73		-.0409				-.1424			
	0.94						-.1424			
Nozzle 6	0.09		-.1350				-.1435		-.1435	
	0.30		-.1413				-.1455		-.1455	
	0.51		-.1391				-.1435		-.1435	
	0.73		-.1435							
Star		0.00	-.0185							
		0.12				-.0905				-.0820
		0.23				-.1265				-.1243

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0596	-.1824	-.2327	-.2133	-.2208	-.2296		.1795
	0.30		.0697	-.1864	-.2296	-.2016	-.2030	-.2311	.0415	.1936
	0.51		.0554	-.2088	-.2090	-.2001	-.2001	-.2385	.0355	.1956
	0.73		.0107		-.1985		-.1985		-.0074	
	0.94		-.1318							
Nozzle 3	0.09		.0676	.2200	.0563		-.2296		-.2371	-.1885
	0.30		.0676	.2240	.0623		-.2075		-.2193	-.1987
	0.51		.0596		.0592		-.2001		-.2059	
	0.73		.0087				-.2016			
	0.94						-.2001			
Nozzle 6	0.09		-.1951				-.1909		-.1951	
	0.30		-.2016				-.1972		-.1972	
	0.51		-.2016				-.2016		-.2016	
	0.73		-.2016							
Star		0.00	-.1652							
		0.12				-.1673				-.1652
		0.23				-.1695				-.1652
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		.0693	-.1744	-.1554	-.1408	-.1688	-.1999		.1892
	0.30		.0794	-.1702	-.1496	-.1451	-.1525	-.1851	.0564	.2115
	0.51		.0510	-.1663	-.1451	-.1437	-.1465	-.1762	.0342	.2034
	0.73		-.0443		-.1437		-.1437		-.0369	
	0.94		-.1377							
Nozzle 3	0.09		.0856	.2318	.0773		-.1645		-.1525	-.1826
	0.30		.0816	.2359	.0758		-.1525		-.1482	-.1784
	0.51		.0470		.0564		-.1482		-.1451	
	0.73		-.0566				-.1451			
	0.94						-.1451			
Nozzle 6	0.09		-.1484				-.1547		-.1547	
	0.30		-.1547				-.1569		-.1569	
	0.51		-.1569				-.1569		-.1569	
	0.73		-.1569							
Star		0.00	-.0333							
		0.12				-.1057				-.0930
		0.23				-.1440				-.1399

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0959	-.1642	-.2328	-.2237	-.2237	-.2386		.1508
	0.30		.0999	-.1723	-.2357	-.2120	-.2091	-.2371	-.0194	.1589
	0.51		.0755	-.2067	-.2179	-.2091	-.2074	-.2386	-.0342	.1385
	0.73		.0206		-.2074		-.2074		-.0623	
	0.94		-.1245							
Nozzle 3	0.09		.0918	.1933	.0235		-.2194		-.2328	-.1783
	0.30		.0796	.1913	.0281		-.2074		-.2328	-.1906
	0.51		.0552		.0235		-.2031		-.2165	
	0.73		.0127				-.2091			
	0.94						-.2074			
Nozzle 6	0.09		-.2036				-.1973		-.2036	
	0.30		-.2080				-.2036		-.2080	
	0.51		-.2080				-.2080		-.2080	
	0.73		-.2080							
Star		0.00	-.1759							
		0.12				-.1781				-.1759
		0.23				-.1866				-.1759
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		.1107	-.1659	-.1585	-.1437	-.1554	-.1999		.1574
	0.30		.1127	-.1679	-.1525	-.1482	-.1511	-.1911	-.0087	.1655
	0.51		.0700	-.1701	-.1511	-.1482	-.1511	-.1733	-.0324	.1330
	0.73		-.0418		-.1482		-.1496		-.0874	
	0.94		-.1408							
Nozzle 3	0.09		.1066	.2001	.0313		-.1554		-.1585	-.1760
	0.30		.0923	.1920	.0342		-.1525		-.1511	-.1802
	0.51		.0456		-.0013		-.1511		-.1496	
	0.73		-.0521				-.1496			
	0.94						-.1465			
Nozzle 6	0.09		-.1527				-.1527		-.1547	
	0.30		-.1547				-.1569		-.1569	
	0.51		-.1569				-.1569		-.1569	
	0.73		-.1569							
Star		0.00	-.0333							
		0.12				-.1100				-.0972
		0.23				-.1462				-.1462

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.1332	-.1273	-.2456	-.2427	-.2442	-.2413		.1209
	0.30		.1454	-.1394	-.2516	-.2382	-.2427	-.2473	-.1314	.1352
	0.51		.1291	-.1943	-.2502	-.2353	-.2353	-.2502	-.1418	.1372
	0.73		.0761		-.2353		-.2324		-.1744	
	0.94		-.0986							
Nozzle 3	0.09		.1332	.1575	-.1032		-.2442		-.2473	-.1414
	0.30		.1313	.1555	-.1061		-.2382		-.2547	-.1597
	0.51		.1251		-.1149		-.2324		-.2487	
	0.73		.0905				-.2324			
	0.94						-.2310			
Nozzle 6	0.09		-.2061				-.2081		-.2232	
	0.30		-.2232				-.2210		-.2252	
	0.51		-.2273				-.2273		-.2295	
	0.73		-.2295							
Star		0.00	-.1998							
		0.12				-.2018				-.1998
		0.23				-.2040				-.1998
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		.1820	-.1375	-.1909	-.1686	-.1627	-.1806		.1371
	0.30		.1840	-.1619	-.1701	-.1627	-.1627	-.1789	-.1196	.1616
	0.51		.1312	-.1760	-.1627	-.1612	-.1627	-.1672	-.1404	.1534
	0.73		-.0072		-.1612		-.1598		-.1583	
	0.94		-.1449							
Nozzle 3	0.09		.1820	.1820	-.0870		-.1641		-.1849	-.1516
	0.30		.1739	.1840	-.0914		-.1627		-.1686	-.1802
	0.51		.1250		-.1181		-.1612		-.1627	
	0.73		-.0134				-.1612			
	0.94						-.1583			
Nozzle 6	0.09		-.1650				-.1672		-.1672	
	0.30		-.1672				-.1693		-.1715	
	0.51		-.1693				-.1715		-.1715	
	0.73		-.1715							
Star		0.00	-.0391							
		0.12				-.1203				-.1053
		0.23				-.1587				-.1565

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0283	-.1345	-.1781	-.1687	-.1781	-.1517		.1602
	0.30		.0414	-.1370	-.1763	-.1669	-.1763	-.1575	.0352	.1706
	0.51		.0361	-.1549	-.1669	-.1669	-.1687	-.1706	.0352	.1653
	0.73		.0257		-.1669		-.1669		.0200	
	0.94		-.0782							
Nozzle 3	0.09		.0361	.1860	.0501		-.1763		-.1781	-.1345
	0.30		.0361	.1834	.0501		-.1726		-.1763	-.1395
	0.51		.0361		.0501		-.1669		-.1706	
	0.73		.0257				-.1669			
	0.94						-.1669			
Nozzle 6	0.09		-.1271				-.1324		-.1512	
	0.30		-.1512				-.1512		-.1540	
	0.51		-.1565				-.1540		-.1565	
	0.73		-.1565							
Star		0.00	-.1110							
		0.12				-.1163				-.1110
		0.23				-.1191				-.1110
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		.0682	-.1041	-.0888	-.0812	-.0943	-.1149		.1840
	0.30		.0734	-.0911	-.0906	-.0831	-.0924	-.1018	.0593	.1917
	0.51		.0348	-.0835	-.0888	-.0812	-.0906	-.0924	.0256	.1634
	0.73		-.0320		-.0849		-.0888		-.0361	
	0.94		-.0849							
Nozzle 3	0.09		.0734	.2096	.0780		-.0943		-.0906	-.1041
	0.30		.0606	.1917	.0668		-.0943		-.0906	-.0911
	0.51		.0169		.0293		-.0906		-.0906	
	0.73		-.0423				-.0906			
	0.94						-.0888			
Nozzle 6	0.09		-.0812				-.0787		-.0840	
	0.30		-.0812				-.0812		-.0840	
	0.51		-.0812				-.0812		-.0840	
	0.73		-.0840							
Star		0.00	.1499							
		0.12				.0156				.0343
		0.23				-.0437				-.0382

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0376	-.1296	-.1746	-.1691	-.1746	-.1709		.1562
	0.30		.0429	-.1374	-.1746	-.1670	-.1691	-.1691	.0399	.1613
	0.51		.0376	-.1553	-.1709	-.1670	-.1670	-.1785	.0305	.1562
	0.73		.0376		-.1670		-.1670		-.0110	
	0.94		-.0787							
Nozzle 3	0.09		.0480	.1819	.0475		-.1691		-.1764	-.1347
	0.30		.0429	.1794	.0454		-.1652		-.1764	-.1400
	0.51		.0404		.0418		-.1652		-.1709	
	0.73		.0376				-.1670			
	0.94						-.1670			
Nozzle 6	0.09		-.1500				-.1553		-.1663	
	0.30		-.1691				-.1691		-.1746	
	0.51		-.1746				-.1746		-.1771	
	0.73		-.1799							
Star		0.00	-.1528							
		0.12				-.1528				-.1500
		0.23				-.1553				-.1500
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		.0785	-.1091	-.0922	-.0849	-.0979	-.1130		.1814
	0.30		.0682	-.0963	-.0922	-.0904	-.0961	-.1036	.0428	.1865
	0.51		.0323	-.0885	-.0904	-.0867	-.0943	-.0961	-.0002	.1686
	0.73		-.0345		-.0904		-.0922		-.0547	
	0.94		-.0885							
Nozzle 3	0.09		.0810	.2096	.0615		-.0961		-.0943	-.1091
	0.30		.0682	.1917	.0428		-.0961		-.0943	-.0963
	0.51		.0220		-.0002		-.0922		-.0922	
	0.73		-.0448				-.0922			
	0.94						-.0904			
Nozzle 6	0.09		-.0867				-.0840		-.0867	
	0.30		-.0867				-.0867		-.0895	
	0.51		-.0895				-.0895		-.0947	
	0.73		-.0920							
Star		0.00	.1446							
		0.12				.0048				.0263
		0.23				-.0517				-.0490

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0670	-.1241	-.1728	-.1728	-.1764	-.1785		.1289
	0.30		.0670	-.1292	-.1746	-.1709	-.1709	-.1785	-.0053	.1264
	0.51		.0463	-.1551	-.1728	-.1691	-.1691	-.1785	-.0110	.1083
	0.73		.0282		-.1691		-.1691		-.0411	
	0.94		-.0523							
Nozzle 3	0.09		.0695	.1471	.0117		-.1691		-.1746	-.1292
	0.30		.0541	.1393	-.0034		-.1670		-.1764	-.1344
	0.51		.0310		-.0034		-.1670		-.1746	
	0.73		.0310				-.1691			
	0.94						-.1670			
Nozzle 6	0.09		-.1475				-.1500		-.1691	
	0.30		-.1666				-.1666		-.1718	
	0.51		-.1718				-.1746		-.1746	
	0.73		-.1746							
Star		0.00	-.1528							
		0.12				-.1583				-.1528
		0.23				-.1583				-.1528
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		.1068	-.1117	-.0961	-.0922	-.0979	-.1091		.1531
	0.30		.0913	-.0988	-.0943	-.0922	-.0979	-.1016	.0053	.1556
	0.51		.0400	-.0911	-.0922	-.0904	-.0943	-.0961	-.0359	.1197
	0.73		-.0295		-.0922		-.0922		-.0716	
	0.94		-.0922							
Nozzle 3	0.09		.0991	.1814	.0279		-.0961		-.0961	-.1117
	0.30		.0709	.1634	.0165		-.0961		-.0943	-.0988
	0.51		.0220		-.0323		-.0943		-.0922	
	0.73		-.0398				-.0922			
	0.94						-.0922			
Nozzle 6	0.09		-.0917				-.0892		-.0917	
	0.30		-.0945				-.0945		-.1000	
	0.51		-.0972				-.0945		-.1000	
	0.73		-.1000							
Star		0.00	.1370							
		0.12				-.0002				.0185
		0.23				-.0567				-.0540

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.1178	-.0960	-.1765	-.1786	-.1822	-.1822		.1357
	0.30		.1178	-.1064	-.1765	-.1765	-.1822	-.1859	-.0901	.1460
	0.51		.0944	-.1320	-.1804	-.1786	-.1804	-.1859	-.0940	.1307
	0.73		.0688		-.1786		-.1765		-.1107	
	0.94		.0094							
Nozzle 3	0.09		.1203	.1563	-.0789		-.1804		-.1765	-.1064
	0.30		.1075	.1589	-.0770		-.1822		-.1786	-.1142
	0.51		.0869		-.0807		-.1786		-.1804	
	0.73		.0791				-.1786			
	0.94						-.1747			
Nozzle 6	0.09		-.1419				-.1637		-.1799	
	0.30		-.1719				-.1719		-.1854	
	0.51		-.1854				-.1854		-.1882	
	0.73		-.1909							
Star		0.00	-.1664							
		0.12				-.1664				-.1664
		0.23				-.1664				-.1664
$\alpha = -8^{\circ}$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		.1743	-.1064	-.1091	-.1091	-.1036	-.1016		.1563
	0.30		.1743	-.1114	-.1055	-.1055	-.1036	-.1055	-.0755	.1794
	0.51		.1126	-.1114	-.1055	-.1016	-.1036	-.1055	-.0922	.1640
	0.73		-.0034		-.1036		-.1036		-.1016	
	0.94		-.1016							
Nozzle 3	0.09		.1821	.1872	-.0547		-.1036		-.1091	-.1114
	0.30		.1640	.1924	-.0641		-.1036		-.1073	-.1167
	0.51		.1073		-.0828		-.1036		-.1036	
	0.73		-.0085				-.1036			
	0.94						-.1036			
Nozzle 6	0.09		-.1027				-.1002		-.1027	
	0.30		-.1082				-.1055		-.1082	
	0.51		-.1082				-.1082		-.1082	
	0.73		-.1082							
Star		0.00	.1366							
		0.12				-.0007				.0156
		0.23				-.0652				-.0597

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0374	-.1031	-.1304	-.1304	-.1357	-.1196		.1481
	0.30		.0447	-.1031	-.1304	-.1278	-.1330	-.1196	.0338	.1518
	0.51		.0335	-.1107	-.1304	-.1304	-.1304	-.1251	.0256	.1334
	0.73		.0263		-.1278		-.1304		.0043	
	0.94		-.0417							
Nozzle 3	0.09		.0522	.1665	.0499		-.1304		-.1304	-.1031
	0.30		.0374	.1557	.0443		-.1304		-.1330	-.1068
	0.51		.0263		.0365		-.1278		-.1304	
	0.73		.0151				-.1304			
	0.94						-.1278			
Nozzle 6	0.09		-.0966				-.1002		-.1081	
	0.30		-.1081				-.1081		-.1156	
	0.51		-.1196				-.1196		-.1235	
	0.73		-.1271							
Star		0.00	-.0926							
		0.12				-.0966				-.0926
		0.23				-.1002				-.0926
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		.0726	-.0302	-.0358	-.0358	-.0384	-.0384		.1682
	0.30		.0726	-.0302	-.0358	-.0358	-.0358	-.0384	.0263	.1498
	0.51		.0397	-.0266	-.0358	-.0332	-.0384	-.0358	.0020	.0985
	0.73		-.0082		-.0358		-.0358		-.0276	
	0.94		-.0302							
Nozzle 3	0.09		.0726	.1754	.0532		-.0384		-.0384	-.0227
	0.30		.0542	.1389	.0345		-.0358		-.0384	-.0266
	0.51		.0250		.0046		-.0384		-.0358	
	0.73		-.0082				-.0358			
	0.94						-.0358			
Nozzle 6	0.09		-.0345				-.0384		-.0345	
	0.30		-.0345				-.0384		-.0384	
	0.51		-.0345				-.0345		-.0384	
	0.73		-.0384							
Star		0.00	.4017							
		0.12				.1856				.2165
		0.23				.0890				.0969

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		.0404	-.0999	-.1304	-.1304	-.1330	-.1278		.1472
	0.30		.0404	-.1071	-.1304	-.1304	-.1330	-.1304	.0338	.1583
	0.51		.0368	-.1071	-.1330	-.1304	-.1330	-.1357	.0233	.1508
	0.73		.0440		-.1304		-.1304		-.0253	
	0.94		-.0440							
Nozzle 3	0.09		.0552	.1731	.0447		-.1304		-.1330	-.0999
	0.30		.0476	.1655	.0394		-.1304		-.1330	-.0999
	0.51		.0368		.0312		-.1278		-.1330	
	0.73		.0404				-.1330			
	0.94						-.1304			
Nozzle 6	0.09		-.1038				-.1038		-.1156	
	0.30		-.1192				-.1156		-.1311	
	0.51		-.1347				-.1347		-.1347	
	0.73		-.1347							
Star		0.00	-.1117							
		0.12				-.1192				-.1117
		0.23				-.1271				-.1117
$\alpha = -2^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.4$										
Nozzle 2	0.09		.0696	-.0371	-.0388	-.0361	-.0361	-.0388		.1692
	0.30		.0660	-.0371	-.0388	-.0335	-.0361	-.0361	.0099	.1655
	0.51		.0328	-.0296	-.0361	-.0305	-.0361	-.0361	-.0145	.1176
	0.73		-.0187		-.0361		-.0335		-.0305	
	0.94		-.0335							
Nozzle 3	0.09		.0844	.1876	.0394		-.0361		-.0388	-.0371
	0.30		.0660	.1655	.0177		-.0361		-.0361	-.0371
	0.51		.0220		-.0092		-.0335		-.0388	
	0.73		-.0187				-.0361			
	0.94						-.0335			
Nozzle 6	0.09		-.0273				-.0312		-.0273	
	0.30		-.0273				-.0273		-.0273	
	0.51		-.0273				-.0273		-.0312	
	0.73		-.0273							
Star		0.00	.3998							
		0.12				.1882				.2151
		0.23				.0999				.0999

TABLE IX. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0660	-.0887	-.1278	-.1278	-.1304	-.1278		.1251
	0.30		.0588	-.0959	-.1278	-.1304	-.1304	-.1304	-.0200	.1104
	0.51		.0404	-.0999	-.1304	-.1304	-.1304	-.1412	-.0174	.0956
	0.73		.0404		-.1304		-.1278		-.0227	
	0.94		-.0148							
Nozzle 3	0.09		.0700	.1508	.0043		-.1304		-.1278	-.0959
	0.30		.0440	.1360	.0043		-.1278		-.1304	-.0959
	0.51		.0292		.0043		-.1278		-.1304	
	0.73		.0404				-.1304			
	0.94						-.1278			
Nozzle 6	0.09		-.1077				-.1114		-.1271	
	0.30		-.1307				-.1271		-.1426	
	0.51		-.1426				-.1426		-.1462	
	0.73		-.1462							
Star		0.00	-.1307							
		0.12				-.1307				-.1271
		0.23				-.1347				-.1271
$\alpha = -4^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.3$										
Nozzle 2	0.09		.0844	-.0335	-.0388	-.0388	-.0388	-.0388		.1435
	0.30		.0772	-.0371	-.0388	-.0388	-.0361	-.0388	.0016	.1324
	0.51		.0365	-.0299	-.0388	-.0335	-.0361	-.0361	-.0174	.0956
	0.73		-.0076		-.0388		-.0361		-.0335	
	0.94		-.0335							
Nozzle 3	0.09		.0880	.1692	.0204		-.0388		-.0388	-.0371
	0.30		.0588	.1472	.0016		-.0361		-.0388	-.0371
	0.51		.0256		-.0200		-.0335		-.0388	
	0.73		-.0151				-.0361			
	0.94						-.0335			
Nozzle 6	0.09		-.0345				-.0384		-.0345	
	0.30		-.0345				-.0384		-.0384	
	0.51		-.0345				-.0384		-.0384	
	0.73		-.0384							
Star		0.00	.3938							
		0.12				.1777				.2046
		0.23				.0851				.0890

TABLE IX. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 12° outward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.1256	-.0739	-.1302	-.1329	-.1382	-.1411		.1441
	0.30		.1147	-.0811	-.1302	-.1329	-.1382	-.1438	-.0570	.1517
	0.51		.0851	-.0884	-.1329	-.1329	-.1382	-.1411	-.0600	.1256
	0.73		.0630		-.1355		-.1329		-.0679	
	0.94		.0241							
Nozzle 3	0.09		.1332	.1626	-.0435		-.1329		-.1329	-.0811
	0.30		.1072	.1589	-.0465		-.1329		-.1329	-.0775
	0.51		.0702		-.0518		-.1329		-.1329	
	0.73		.0666				-.1329			
	0.94						-.1329			
Nozzle 6	0.09		-.0996				-.1190		-.1309	
	0.30		-.1269				-.1309		-.1345	
	0.51		-.1385				-.1385		-.1385	
	0.73		-.1385							
Star		0.00	-.1309							
		0.12				-.1309				-.1269
		0.23				-.1345				-.1230
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		.1692	-.0519	-.0470	-.0470	-.0470	-.0496		.1655
	0.30		.1472	-.0443	-.0470	-.0470	-.0470	-.0470	-.0361	.1767
	0.51		.0880	-.0443	-.0470	-.0470	-.0440	-.0470	-.0414	.1324
	0.73		-.0003		-.0470		-.0440		-.0414	
	0.94		-.0440							
Nozzle 3	0.09		.1767	.1912	-.0227		-.0440		-.0496	-.0555
	0.30		.1435	.1839	-.0279		-.0440		-.0470	-.0519
	0.51		.0736		-.0361		-.0388		-.0470	
	0.73		-.0039				-.0440			
	0.94						-.0440			
Nozzle 6	0.09		-.0460				-.0496		-.0460	
	0.30		-.0496				-.0496		-.0496	
	0.51		-.0496				-.0496		-.0496	
	0.73		-.0496							
Star		0.00	.3869							
		0.12				.1744				.2014
		0.23				.0778				.0854

TABLE X

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2965	-.3000	-.2995	-.2758	-.2995	-.2995		-.3000
	0.30		-.2983	-.3000	-.2995	-.2869	-.2995	-.2983	-.2983	-.2983
	0.51		-.3000	-.2983	-.2995	-.2958	-.2995	-.2983	-.2970	-.3000
	0.73		-.2983		-.2983		-.2970		-.2958	
Nozzle 3	0.09		-.3017	-.3034	-.2995		-.3007		-.2995	-.3034
	0.30		-.3017	-.3017	-.2995		-.3007		-.2995	-.3017
	0.51		-.3017		-.2995		-.2995		-.2995	
	0.73		-.3017				-.2995			
Nozzle 6	0.09		-.3072				-.3054		-.2983	
	0.30		-.3018				-.3072		-.3037	
	0.51		-.3018				-.3018		-.3018	
	0.73								-.3018	
Shroud	0.13									.0887
	0.41									.1604
	0.62								-.3269	.2285
	0.81								-.3556	
	1.00								-.2928	.2894
Heat Shield		0.68								-.3001
		0.79								-.3001
		0.91								
		1.13	-.3018							
		1.25	-.3018							
		1.38	-.3018							
Star		0.00	-.2249							
		0.12				-.2285				-.2249
		0.23				-.2356				-.2249

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2951	-.2969	-.2995	-.2820	-.2995	-.2995		-.2969
	0.30		-.2969	-.2969	-.3020	-.2882	-.3007	-.2983	-.2983	-.2969
	0.51		-.2969	-.2969	-.2995	-.2970	-.2995	-.2983	-.2970	-.2969
	0.73		-.2969		-.2983		-.2970		-.2970	
Nozzle 3	0.09		-.3003	-.3020	-.3007		-.3020		-.2995	-.3020
	0.30		-.3020	-.3020	-.3007		-.3020		-.3020	-.3020
	0.51		-.3020		-.2995		-.3020		-.2995	
	0.73		-.2986				-.3007			
Nozzle 6	0.09		-.3086				-.3068		-.2978	
	0.30		-.3032				-.3068		-.3051	
	0.51		-.3032				-.3032		-.3051	
	0.73								-.3051	
Shroud	0.13									.0915
	0.41									.1562
	0.62								-.3212	.2136
	0.81								-.3445	
	1.00								-.2907	.2710
Heat Shield		0.68								-.2978
		0.79								-.2996
		0.91								
		1.13	-.3014							
		1.25	-.3032							
		1.38	-.3014							
Star		0.00	-.2423							
		0.12				-.2458				-.2368
		0.23				-.2513				-.2350

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2934	-.2951	-.2995	-.2832	-.3007	-.2983		-.2951
	0.30		-.2951	-.2951	-.3007	-.2894	-.3007	-.2983	-.2970	-.2934
	0.51		-.2951	-.2951	-.2995	-.2970	-.2995	-.2983	-.2958	-.2951
	0.73		-.2934		-.2983		-.2970		-.2970	
Nozzle 3	0.09		-.2969	-.2969	-.2995		-.3007		-.2995	-.2969
	0.30		-.2969	-.2969	-.2995		-.3020		-.2995	-.2969
	0.51		-.2969		-.2995		-.3007		-.2995	
	0.73		-.2969				-.2995			
Nozzle 6	0.09		-.3014				-.3014		-.2961	
	0.30		-.2978				-.3032		-.3014	
	0.51		-.2996				-.3014		-.3014	
	0.73								-.3014	
Shroud	0.13									.0879
	0.41									.1436
	0.62								-.3139	.1920
	0.81								-.3302	
	1.00								-.2925	.2244
Heat Shield		0.68								-.2961
		0.79								-.2978
		0.91								
		1.13	-.2978							
		1.25	-.2978							
		1.38	-.2978							
Star		0.00	-.2655							
		0.12				-.2655				-.2584
		0.23				-.2674				-.2584

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.3041	-.3076	-.3015	-.2990	-.3091	-.3079		-.3076
	0.30		-.3076	-.3093	-.3066	-.3003	-.3091	-.3066	-.3066	-.3059
	0.51		-.3076	-.3059	-.3079	-.3040	-.3079	-.3066	-.3066	-.3059
	0.73		-.3076		-.3066		-.3066		-.3066	
Nozzle 3	0.09		-.3093	-.3093	-.3079		-.3116		-.3066	-.3110
	0.30		-.3093	-.3076	-.3091		-.3103		-.3079	-.3093
	0.51		-.3093		-.3091		-.3091		-.3079	
	0.73		-.3093				-.3091			
Nozzle 6	0.09		-.3037				-.3037		-.3018	
	0.30		-.3037				-.3054		-.3127	
	0.51		-.3072				-.3108		-.3127	
	0.73								-.3144	
Shroud	0.13									.0923
	0.41									.1388
	0.62								-.3162	.1836
	0.81								-.3215	
	1.00								-.2965	.2016
Heat Shield		0.68								-.3054
		0.79								-.3072
		0.91								
		1.13	-.3054							
		1.25	-.3054							
		1.38	-.3072							
Star		0.00	-.2840							
		0.12				-.2857				-.2840
		0.23				-.2893				-.2840

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3411	-.3411	-.3411	-.3125	-.3162	-.3325		-.3394
	0.30		-.3445	-.3463	-.3399	-.3150	-.3238	-.3387	-.3411	-.3360
	0.51		-.3463	-.3445	-.3411	-.3038	-.3263	-.3461	-.3449	-.3377
	0.73		-.3463		-.3411		-.3174		-.3461	
Nozzle 3	0.09		-.3463	-.3428	-.3461		-.3411		-.3449	-.3394
	0.30		-.3463	-.3411	-.3486		-.3436		-.3461	-.3463
	0.51		-.3480		-.3486		-.3411		-.3411	
	0.73		-.3480				-.3424			
Nozzle 6	0.09		-.2922				-.3047		-.3226	
	0.30		-.3012				-.3173		-.3332	
	0.51		-.3012				-.3119		-.3332	
	0.73								-.3244	
Shroud	0.13									.0931
	0.41									.1644
	0.62								-.3261	.2358
	0.81								-.3529	
	1.00								-.2905	.2911
Heat Shield		0.68								-.2815
		0.79								-.2779
		0.91								
		1.13	-.3226							
		1.25	-.3208							
		1.38	-.3190							
Star		0.00	-.2174							
		0.12				-.2601				-.2530
		0.23				-.2815				-.2727

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3419	-.3402	-.3414	-.3115	-.3127	-.3402		-.3419
	0.30		-.3485	-.3502	-.3402	-.3152	-.3301	-.3389	-.3402	-.3402
	0.51		-.3485	-.3485	-.3402	-.3065	-.3313	-.3439	-.3439	-.3402
	0.73		-.3485		-.3377		-.3214		-.3426	
Nozzle 3	0.09		-.3485	-.3451	-.3464		-.3377		-.3464	-.3419
	0.30		-.3485	-.3436	-.3476		-.3402		-.3464	-.3485
	0.51		-.3485		-.3476		-.3414		-.3426	
	0.73		-.3502				-.3426			
Nozzle 6	0.09		-.2994				-.3084		-.3247	
	0.30		-.3084				-.3228		-.3372	
	0.51		-.3102				-.3192		-.3335	
	0.73								-.3299	
Shroud	0.13									.0902
	0.41									.1548
	0.62								-.3247	.2106
	0.81								-.3443	
	1.00								-.2941	.2698
Heat Shield		0.68								-.3013
		0.79								-.2977
		0.91								
		1.13	-.3299							
		1.25	-.3299							
		1.38	-.3264							
Star		0.00	-.2258							
		0.12				-.2707				-.2617
		0.23				-.2923				-.2851

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3388	-.3405	-.3389	-.3140	-.3251	-.3402		-.3388
	0.30		-.3456	-.3456	-.3377	-.3177	-.3402	-.3402	-.3377	-.3353
	0.51		-.3456	-.3439	-.3377	-.3090	-.3377	-.3414	-.3389	-.3353
	0.73		-.3456		-.3313		-.3288		-.3389	
Nozzle 3	0.09		-.3456	-.3439	-.3451		-.3377		-.3451	-.3422
	0.30		-.3456	-.3422	-.3464		-.3402		-.3451	-.3456
	0.51		-.3456		-.3464		-.3439		-.3402	
	0.73		-.3456				-.3402			
Nozzle 6	0.09		-.3057				-.3095		-.3291	
	0.30		-.3147				-.3202		-.3346	
	0.51		-.3130				-.3185		-.3329	
	0.73								-.3291	
Shroud	0.13									.0851
	0.41									.1464
	0.62								-.3220	.1897
	0.81								-.3346	
	1.00								-.2968	.2256
Heat Shield		0.68								-.3112
		0.79								-.3112
		0.91								
		1.13	-.3291							
		1.25	-.3291							
		1.38	-.3274							
Star		0.00	-.2266							
		0.12				-.2715				-.2608
		0.23				-.2951				-.2878

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(a) $M_{\infty} = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3419	-.3402	-.3391	-.3242	-.3378	-.3453		-.3436
	0.30		-.3468	-.3485	-.3403	-.3230	-.3465	-.3453	-.3428	-.3402
	0.51		-.3485	-.3468	-.3403	-.3118	-.3440	-.3465	-.3440	-.3384
	0.73		-.3485		-.3341		-.3341		-.3428	
Nozzle 3	0.09		-.3451	-.3451	-.3453		-.3366		-.3453	-.3436
	0.30		-.3468	-.3402	-.3440		-.3453		-.3465	-.3468
	0.51		-.3451		-.3465		-.3465		-.3453	
	0.73		-.3485				-.3465			
Nozzle 6	0.09		-.3185				-.3112		-.3239	
	0.30		-.3256				-.3346		-.3400	
	0.51		-.3256				-.3274		-.3383	
	0.73								-.3383	
Shroud	0.13									.0834
	0.41									.1320
	0.62								-.3274	.1753
	0.81								-.3291	
	1.00								-.3040	.1968
Heat Shield		0.68								-.3256
		0.79								-.3310
		0.91								
		1.13	-.3346							
		1.25	-.3346							
		1.38	-.3346							
Star		0.00	-.2266							
		0.12				-.2769				-.2608
		0.23				-.2986				-.2896

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2203	-.2243	-.2185	-.2026	-.2214	-.2228		-.2243
	0.30		-.2243	-.2263	-.2228	-.2185	-.2228	-.2243	-.2228	-.2243
	0.51		-.2243	-.2263	-.2243	-.2199	-.2228	-.2228	-.2228	-.2243
	0.73		-.2243		-.2228		-.2228		-.2228	
Nozzle 3	0.09		-.2243	-.2263	-.2243		-.2228		-.2228	-.2243
	0.30		-.2243	-.2243	-.2228		-.2243		-.2243	-.2263
	0.51		-.2243		-.2243		-.2243		-.2257	
	0.73		-.2243				-.2243			
Nozzle 6	0.09		-.2243				-.2263		-.2243	
	0.30		-.2284				-.2263		-.2263	
	0.51		-.2263				-.2263		-.2263	
	0.73								-.2263	
Shroud	0.13									.1267
	0.41									.1683
	0.62								-.2243	.2015
	0.81								-.2221	
	1.00								-.1765	.2036
Heat Shield		0.68								-.2221
		0.79								-.2221
		0.91								
		1.13	-.2179							
		1.25	-.2221							
		1.38	-.2221							
Star		0.00	-.1640							
		0.12				-.1640				-.1640
		0.23				-.1660				-.1640

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2274	-.2313	-.2237	-.2121	-.2281	-.2281		-.2313
	0.30		-.2313	-.2333	-.2281	-.2237	-.2295	-.2281	-.2266	-.2333
	0.51		-.2333	-.2333	-.2281	-.2252	-.2281	-.2266	-.2281	-.2333
	0.73		-.2333		-.2281		-.2281		-.2281	
Nozzle 3	0.09		-.2333	-.2333	-.2281		-.2281		-.2281	-.2333
	0.30		-.2333	-.2333	-.2281		-.2295		-.2281	-.2333
	0.51		-.2333		-.2281		-.2281		-.2295	
	0.73		-.2333				-.2281			
Nozzle 6	0.09		-.2341				-.2319		-.2299	
	0.30		-.2319				-.2299		-.2299	
	0.51		-.2299				-.2299		-.2299	
	0.73								-.2299	
Shroud	0.13									.1227
	0.41									.1540
	0.62								-.2236	.1895
	0.81								-.2216	
	1.00								-.1778	.1917
Heat Shield		0.68								-.2277
		0.79								-.2299
		0.91								
		1.13	-.2236							
		1.25	-.2299							
		1.38	-.2299							
Star		0.00	-.1778							
		0.12				-.1797				-.1778
		0.23				-.1861				-.1756

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2274	-.2293	-.2196	-.2138	-.2254	-.2254		-.2293
	0.30		-.2293	-.2293	-.2254	-.2210	-.2268	-.2268	-.2254	-.2293
	0.51		-.2293	-.2313	-.2268	-.2239	-.2254	-.2254	-.2254	-.2313
	0.73		-.2313		-.2254		-.2254		-.2239	
Nozzle 3	0.09		-.2313	-.2313	-.2268		-.2254		-.2254	-.2313
	0.30		-.2313	-.2313	-.2268		-.2268		-.2268	-.2313
	0.51		-.2313		-.2254		-.2268		-.2268	
	0.73		-.2313				-.2268			
Nozzle 6	0.09		-.2317				-.2317		-.2317	
	0.30		-.2317				-.2317		-.2317	
	0.51		-.2317				-.2317		-.2317	
	0.73								-.2317	
Shroud	0.13									.0921
	0.41									.1215
	0.62								-.2275	.1466
	0.81								-.2255	
	1.00								-.1899	.1403
Heat Shield		0.68								-.2297
		0.79								-.2317
		0.91								
		1.13	-.2317							
		1.25	-.2317							
		1.38	-.2317							
Star		0.00	-.1962							
		0.12				-.1984				-.1921
		0.23				-.2004				-.1921

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2415	-.2455	-.2339	-.2295	-.2397	-.2411		-.2455
	0.30		-.2455	-.2455	-.2440	-.2368	-.2426	-.2411	-.2411	-.2455
	0.51		-.2455	-.2455	-.2426	-.2397	-.2411	-.2411	-.2411	-.2455
	0.73		-.2455		-.2411		-.2397		-.2411	
Nozzle 3	0.09		-.2455	-.2455	-.2426		-.2411		-.2397	-.2455
	0.30		-.2455	-.2455	-.2411		-.2426		-.2411	-.2455
	0.51		-.2455		-.2411		-.2411		-.2411	
	0.73		-.2455				-.2411			
Nozzle 6	0.09		-.2426				-.2321		-.2404	
	0.30		-.2426				-.2404		-.2426	
	0.51		-.2426				-.2426		-.2446	
	0.73								-.2426	
Shroud	0.13									.0784
	0.41									.1095
	0.62								-.2342	.1388
	0.81								-.2362	
	1.00								-.2093	.1450
Heat Shield		0.68								-.2404
		0.79								-.2426
		0.91								
		1.13	-.2426							
		1.25	-.2426							
		1.38	-.2426							
Star		0.00	-.2071							
		0.12				-.2093				-.2071
		0.23				-.2154				-.2071

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) M_∞ = 2.00 - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.2023	-.2043	-.2106	-.1831	-.2034	-.2091		-.2023
	0.30		-.2043	-.2082	-.2091	-.1845	-.2019	-.2120	-.2106	-.1985
	0.51		-.2023	-.2082	-.2077	-.1816	-.1990	-.2120	-.2106	-.1965
	0.73		-.2023		-.2005		-.1932		-.2106	
Nozzle 3	0.09		-.2043	-.2043	-.2077		-.2106		-.2091	-.2043
	0.30		-.2063	-.2023	-.2091		-.2120		-.2063	-.2082
	0.51		-.2082		-.2106		-.2106		-.2019	
	0.73		-.2063				-.2019			
Nozzle 6	0.09		-.1789				-.2493		-.2142	
	0.30		-.1789				-.2120		-.2017	
	0.51		-.1789				-.1851		-.1996	
	0.73								-.1914	
Shroud	0.13									.1321
	0.41									.1713
	0.62								-.1892	.2046
	0.81								-.2079	
	1.00								-.1726	.2086
Heat Shield		0.68								-.1726
		0.79								-.1726
		0.91								
		1.13	-.1789							
		1.25	-.1789							
		1.38	-.1809							
Star		0.00	-.0172							
		0.12				-.1147				-.0877
		0.23				-.1520				-.1437

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.2019	-.2079	-.2119	-.1871	-.1987	-.2061		-.2059
	0.30		-.2059	-.2099	-.2090	-.1871	-.1972	-.2090	-.2090	-.2039
	0.51		-.2059	-.2119	-.2046	-.1842	-.1958	-.2104	-.2090	-.2039
	0.73		-.2059		-.2001		-.1914		-.2075	
Nozzle 3	0.09		-.2099	-.2079	-.2061		-.2119		-.2104	-.2119
	0.30		-.2099	-.2079	-.2104		-.2119		-.2061	-.2139
	0.51		-.2139		-.2104		-.2090		-.2032	
	0.73		-.2139				-.2001			
Nozzle 6	0.09		-.1905				-.2551		-.2177	
	0.30		-.1905				-.2218		-.2072	
	0.51		-.1905				-.1968		-.2093	
	0.73								-.1988	
Shroud	0.13									.1198
	0.41									.1531
	0.62								-.1988	.1864
	0.81								-.2155	
	1.00								-.1822	.1905
Heat Shield		0.68								-.1864
		0.79								-.1885
		0.91								
		1.13	-.1905							
		1.25	-.1927							
		1.38	-.1927							
Star		0.00	-.0261							
		0.12				-.1259				-.0990
		0.23				-.1634				-.1551

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.2055	-.2095	-.2115	-.1912	-.1985	-.2072		-.2075
	0.30		-.2075	-.2115	-.2086	-.1898	-.1970	-.2101	-.2086	-.2075
	0.51		-.2075	-.2115	-.2072	-.1854	-.1970	-.2101	-.2086	-.2075
	0.73		-.2075		-.2014		-.1956		-.2072	
Nozzle 3	0.09		-.2095	-.2095	-.2072		-.2115		-.2115	-.2157
	0.30		-.2115	-.2075	-.2115		-.2101		-.2086	-.2135
	0.51		-.2135		-.2115		-.2072		-.2043	
	0.73		-.2115				-.2014			
Nozzle 6	0.09		-.1941				-.2569		-.2171	
	0.30		-.1941				-.2234		-.2108	
	0.51		-.1963				-.2025		-.2108	
	0.73								-.2025	
Shroud	0.13									.0921
	0.41									.1172
	0.62								-.2025	.1444
	0.81								-.2213	
	1.00								-.1941	.1402
Heat Shield		0.68								-.1941
		0.79								-.1963
		0.91								
		1.13	-.1963							
		1.25	-.1983							
		1.38	-.2005							
Star		0.00	-.0270							
		0.12				-.1314				-.1022
		0.23				-.1690				-.1587

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.2113	-.2153	-.2187	-.1983	-.2055	-.2158		-.2133
	0.30		-.2133	-.2173	-.2158	-.1983	-.2055	-.2187	-.2187	-.2133
	0.51		-.2153	-.2193	-.2144	-.1896	-.2055	-.2158	-.2158	-.2133
	0.73		-.2153		-.2070		-.2055		-.2158	
Nozzle 3	0.09		-.2173	-.2173	-.2158		-.2158		-.2187	-.2193
	0.30		-.2173	-.2153	-.2187		-.2144		-.2158	-.2213
	0.51		-.2193		-.2158		-.2144		-.2144	
	0.73		-.2213				-.2101			
Nozzle 6	0.09		-.1965				-.2528		-.2215	
	0.30		-.1965				-.2195		-.2153	
	0.51		-.2028				-.2028		-.2131	
	0.73								-.2090	
Shroud	0.13									.0706
	0.41									.1060
	0.62								-.2090	.1312
	0.81								-.2278	
	1.00								-.2153	.1395
Heat Shield		0.68								-.1985
		0.79								-.2006
		0.91								
		1.13	-.2028							
		1.25	-.2070							
		1.38	-.2070							
Star		0.00	-.0253							
		0.12				-.1276				-.1004
		0.23				-.1672				-.1589

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1724	-.1775	-.1706	-.1577	-.1761	-.1742		-.1775
	0.30		-.1800	-.1749	-.1779	-.1779	-.1797	-.1797	-.1797	-.1775
	0.51		-.1800	-.1800	-.1816	-.1761	-.1816	-.1797	-.1816	-.1775
	0.73		-.1800		-.1797		-.1797		-.1816	
Nozzle 3	0.09		-.1800	-.1800	-.1797		-.1779		-.1761	-.1749
	0.30		-.1800	-.1800	-.1816		-.1797		-.1816	-.1800
	0.51		-.1800		-.1816		-.1816		-.1797	
	0.73		-.1800				-.1816			
Nozzle 6	0.09		-.1715				-.1820		-.1768	
	0.30		-.1793				-.1820		-.1820	
	0.51		-.1820				-.1846		-.1846	
	0.73								-.1820	
Shroud	0.13									.1218
	0.41									.1404
	0.62								-.1556	.1616
	0.81								-.1556	
	1.00								-.1239	.1352
Heat Shield		0.68								-.1768
		0.79								-.1768
		0.91								
		1.13	-.1793							
		1.25	-.1820							
		1.38	-.1793							
Star		0.00	-.1317							
		0.12				-.1345				-.1292
		0.23				-.1370				-.1292

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1726	-.1751	-.1637	-.1545	-.1728	-.1728		-.1751
	0.30		-.1751	-.1751	-.1728	-.1728	-.1765	-.1747	-.1765	-.1751
	0.51		-.1751	-.1776	-.1765	-.1747	-.1747	-.1765	-.1747	-.1776
	0.73		-.1751		-.1747		-.1747		-.1765	
Nozzle 3	0.09		-.1776	-.1776	-.1765		-.1747		-.1728	-.1776
	0.30		-.1776	-.1776	-.1765		-.1765		-.1765	-.1751
	0.51		-.1776		-.1765		-.1765		-.1765	
	0.73		-.1776				-.1765			
Nozzle 6	0.09		-.1818				-.1818		-.1818	
	0.30		-.1843				-.1870		-.1870	
	0.51		-.1870				-.1870		-.1870	
	0.73								-.1870	
Shroud	0.13									.1125
	0.41									.1391
	0.62								-.1605	.1577
	0.81								-.1552	
	1.00								-.1286	.1311
Heat Shield		0.68								-.1818
		0.79								-.1843
		0.91								
		1.13	-.1843							
		1.25	-.1843							
		1.38	-.1843							
Star		0.00	-.1472							
		0.12				-.1499				-.1446
		0.23				-.1552				-.1446

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3^o inward and engines 1 and 4 gimbaled 6^o outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^o	45^o	90^o	135^o	180^o	225^o	270^o	315^o
$\alpha = -4^o$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1702	-.1753	-.1654	-.1599	-.1782	-.1782		-.1753
	0.30		-.1753	-.1753	-.1764	-.1746	-.1801	-.1782	-.1782	-.1753
	0.51		-.1753	-.1753	-.1782	-.1764	-.1782	-.1782	-.1782	-.1753
	0.73		-.1753		-.1782		-.1782		-.1782	
Nozzle 3	0.09		-.1778	-.1753	-.1782		-.1782		-.1764	-.1778
	0.30		-.1778	-.1778	-.1782		-.1782		-.1782	-.1753
	0.51		-.1753		-.1782		-.1782		-.1782	
	0.73		-.1778				-.1782			
Nozzle 6	0.09		-.1817				-.1844		-.1844	
	0.30		-.1844				-.1869		-.1844	
	0.51		-.1844				-.1844		-.1869	
	0.73								-.1869	
Shroud	0.13									.0913
	0.41									.1126
	0.62								-.1684	.1338
	0.81								-.1659	
	1.00								-.1393	.1126
Heat Shield		0.68								-.1817
		0.79								-.1844
		0.91								
		1.13	-.1844							
		1.25	-.1844							
		1.38	-.1844							
Star		0.00	-.1606							
		0.12				-.1631				-.1606
		0.23				-.1684				-.1606

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1777	-.1853	-.1818	-.1745	-.1855	-.1818		-.1853
	0.30		-.1853	-.1853	-.1837	-.1818	-.1855	-.1873	-.1873	-.1853
	0.51		-.1853	-.1853	-.1873	-.1837	-.1855	-.1873	-.1855	-.1853
	0.73		-.1853		-.1855		-.1855		-.1873	
Nozzle 3	0.09		-.1878	-.1878	-.1873		-.1855		-.1855	-.1878
	0.30		-.1878	-.1878	-.1873		-.1873		-.1855	-.1802
	0.51		-.1878		-.1873		-.1873		-.1873	
	0.73		-.1878				-.1873			
Nozzle 6	0.09		-.1846				-.1871		-.1871	
	0.30		-.1871				-.1898		-.1871	
	0.51		-.1898				-.1898		-.1898	
	0.73								-.1898	
Shroud	0.13									.0932
	0.41									.1195
	0.62								-.1793	.1381
	0.81								-.1766	
	1.00								-.1608	.1303
Heat Shield		0.68								-.1898
		0.79								-.1898
		0.91								
		1.13	-.1898							
		1.25	-.1924							
		1.38	-.1924							
Star		0.00	-.1685							
		0.12				-.1685				-.1660
		0.23				-.1685				-.1685

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1103	-.1176	-.1229	-.1100	-.1137	-.1265		-.1103
	0.30		-.1125	-.1176	-.1210	-.1100	-.1155	-.1284	-.1265	-.1103
	0.51		-.1125	-.1176	-.1192	-.1009	-.1155	-.1247	-.1247	-.1052
	0.73		-.1103		-.1119		-.1137		-.1229	
Nozzle 3	0.09		-.1103	-.1103	-.1247		-.1229		-.1229	-.1125
	0.30		-.1125	-.1077	-.1265		-.1229		-.1210	-.1151
	0.51		-.1151		-.1265		-.1210		-.1155	
	0.73		-.1125				-.1155			
Nozzle 6	0.09		-.1084				-.1057		-.1137	
	0.30		-.1057				-.1004		-.1137	
	0.51		-.1084				-.1057		-.1084	
	0.73								-.1084	
Shroud	0.13									.1313
	0.41									.1552
	0.62								-.1057	.1735
	0.81								-.1162	
	1.00								-.1057	.1472
Heat Shield		0.68								-.0979
		0.79								-.1004
		0.91								
		1.13	-.0846							
		1.25	-.0846							
		1.38	-.0951							
Star		0.00	.1788							
		0.12				.0364				.0445
		0.23				-.0268				-.0241

TABLE X.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at Ø of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1145	-.1221	-.1264	-.1136	-.1172	-.1264		-.1170
	0.30		-.1170	-.1221	-.1227	-.1117	-.1172	-.1264	-.1264	-.1145
	0.51		-.1170	-.1221	-.1209	-.1044	-.1172	-.1246	-.1246	-.1145
	0.73		-.1170		-.1154		-.1154		-.1227	
Nozzle 3	0.09		-.1170	-.1170	-.1264		-.1209		-.1246	-.1221
	0.30		-.1221	-.1170	-.1301		-.1209		-.1227	-.1221
	0.51		-.1221		-.1301		-.1209		-.1209	
	0.73		-.1221				-.1172			
Nozzle 6	0.09		-.1131				-.1104		-.1264	
	0.30		-.1131				-.1078		-.1211	
	0.51		-.1131				-.1104		-.1156	
	0.73								-.1156	
Shroud	0.13									.1250
	0.41									.1436
	0.62								-.1131	.1620
	0.81								-.1289	
	1.00								-.1184	.1383
Heat Shield		0.68								-.1078
		0.79								-.1104
		0.91								
		1.13	-.0973							
		1.25	-.0973							
		1.38	-.1078							
Star		0.00	.1700							
		0.12				.0298				.0323
		0.23				-.0390				-.0337

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 11.5$										
Nozzle 2	0.09		-.1234	-.1312	-.1244	-.1131	-.1170	-.1244		-.1260
	0.30		-.1285	-.1312	-.1225	-.1131	-.1170	-.1244	-.1225	-.1260
	0.51		-.1285	-.1312	-.1188	-.1057	-.1188	-.1244	-.1225	-.1260
	0.73		-.1260		-.1131		-.1149		-.1207	
Nozzle 3	0.09		-.1260	-.1260	-.1244		-.1207		-.1262	-.1312
	0.30		-.1312	-.1285	-.1262		-.1207		-.1244	-.1312
	0.51		-.1285		-.1262		-.1244		-.1188	
	0.73		-.1285				-.1188			
Nozzle 6	0.09		-.1179				-.1152		-.1285	
	0.30		-.1152				-.1126		-.1232	
	0.51		-.1179				-.1152		-.1207	
	0.73								-.1232	
Shroud	0.13									.0972
	0.41									.1209
	0.62								-.1179	.1370
	0.81								-.1338	
	1.00								-.1285	.1209
Heat Shield		0.68								-.1152
		0.79								-.1179
		0.91								
		1.13	-.1021							
		1.25	-.1073							
		1.38	-.1152							
Star		0.00	.1662							
		0.12				.0228				.0308
		0.23				-.0437				-.0384

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1242	-.1293	-.1284	-.1155	-.1192	-.1284		-.1293
	0.30		-.1293	-.1343	-.1247	-.1155	-.1210	-.1265	-.1284	-.1293
	0.51		-.1293	-.1343	-.1229	-.1119	-.1210	-.1284	-.1265	-.1293
	0.73		-.1293		-.1155		-.1192		-.1265	
Nozzle 3	0.09		-.1293	-.1293	-.1284		-.1210		-.1284	-.1343
	0.30		-.1318	-.1318	-.1284		-.1229		-.1265	-.1343
	0.51		-.1343		-.1284		-.1265		-.1229	
	0.73		-.1318				-.1210			
Nozzle 6	0.09		-.1236				-.1210		-.1341	
	0.30		-.1183				-.1155		-.1288	
	0.51		-.1236				-.1210		-.1288	
	0.73								-.1288	
Shroud	0.13									.0935
	0.41									.1146
	0.62								-.1341	.1332
	0.81								-.1421	
	1.00								-.1527	.1279
Heat Shield		0.68								-.1210
		0.79								-.1210
		0.91								
		1.13	-.1050							
		1.25	-.1103							
		1.38	-.1236							
Star		0.00	.1650							
		0.12				.0248				.0273
		0.23				-.0442				-.0390

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1300	-.1336	-.1445	-.1389	-.1445	-.1389		-.1409
	0.30		-.1409	-.1336	-.1415	-.1445	-.1471	-.1415	-.1497	-.1409
	0.51		-.1409	-.1445	-.1471	-.1471	-.1471	-.1497	-.1497	-.1445
	0.73		-.1445		-.1497		-.1471		-.1497	
Nozzle 3	0.09		-.1481	-.1481	-.1497		-.1497		-.1497	-.1445
	0.30		-.1481	-.1481	-.1497		-.1497		-.1497	-.1300
	0.51		-.1445		-.1497		-.1497		-.1497	
	0.73		-.1481				-.1497			
Nozzle 6	0.09		-.1316				-.1428		-.1428	
	0.30		-.1428				-.1428		-.1507	
	0.51		-.1507				-.1507		-.1507	
	0.73								-.1507	
Shroud	0.13									.1083
	0.41									.1158
	0.62								-.1162	.1158
	0.81								-.1126	
	1.00								-.0859	.0665
Heat Shield		0.68								-.1428
		0.79								-.1428
		0.91								
		1.13	-.1428							
		1.25	-.1428							
		1.38	-.1428							
Star		0.00	-.1201							
		0.12				-.1241				-.1201
		0.23				-.1316				-.1201

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1228	-.1300	-.1366	-.1366	-.1418	-.1339		-.1336
	0.30		-.1336	-.1336	-.1392	-.1392	-.1445	-.1445	-.1445	-.1336
	0.51		-.1336	-.1336	-.1445	-.1418	-.1445	-.1445	-.1445	-.1336
	0.73		-.1336		-.1418		-.1445		-.1445	
Nozzle 3	0.09		-.1372	-.1372	-.1445		-.1418		-.1445	-.1372
	0.30		-.1372	-.1372	-.1445		-.1445		-.1445	-.1228
	0.51		-.1336		-.1445		-.1445		-.1445	
	0.73		-.1372				-.1445			
Nozzle 6	0.09		-.1316				-.1392		-.1392	
	0.30		-.1432				-.1432		-.1432	
	0.51		-.1468				-.1468		-.1468	
	0.73								-.1468	
Shroud	0.13									.1116
	0.41									.1267
	0.62								-.1089	.1343
	0.81								-.1089	
	1.00								-.0974	.0889
Heat Shield		0.68								-.1392
		0.79								-.1392
		0.91								
		1.13	-.1432							
		1.25	-.1432							
		1.38	-.1468							
Star		0.00	-.1201							
		0.12				-.1277				-.1201
		0.23				-.1356				-.1165

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1228	-.1301	-.1393	-.1366	-.1419	-.1445		-.1337
	0.30		-.1337	-.1337	-.1393	-.1419	-.1472	-.1472	-.1445	-.1337
	0.51		-.1373	-.1373	-.1445	-.1419	-.1445	-.1445	-.1472	-.1373
	0.73		-.1373		-.1445		-.1445		-.1445	
Nozzle 3	0.09		-.1373	-.1373	-.1445		-.1445		-.1445	-.1373
	0.30		-.1373	-.1373	-.1445		-.1445		-.1445	-.1337
	0.51		-.1337		-.1445		-.1445		-.1445	
	0.73		-.1373				-.1445			
Nozzle 6	0.09		-.1278				-.1357		-.1393	
	0.30		-.1393				-.1393		-.1393	
	0.51		-.1393				-.1393		-.1393	
	0.73								-.1393	
Shroud	0.13									.0884
	0.41									.1035
	0.62								-.1166	.1074
	0.81								-.1166	
	1.00								-.1051	.0844
Heat Shield		0.68								-.1393
		0.79								-.1393
		0.91								
		1.13	-.1393							
		1.25	-.1393							
		1.38	-.1393							
Star		0.00	-.1278							
		0.12				-.1278				-.1242
		0.23				-.1317				-.1242

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1265	-.1337	-.1472	-.1445	-.1472	-.1366		-.1373
	0.30		-.1409	-.1445	-.1393	-.1445	-.1445	-.1498	-.1472	-.1445
	0.51		-.1445	-.1445	-.1472	-.1445	-.1472	-.1472	-.1498	-.1445
	0.73		-.1445		-.1472		-.1472		-.1472	
Nozzle 3	0.09		-.1445	-.1445	-.1472		-.1472		-.1472	-.1445
	0.30		-.1445	-.1445	-.1472		-.1472		-.1472	-.1445
	0.51		-.1445		-.1498		-.1472		-.1472	
	0.73		-.1445				-.1472			
Nozzle 6	0.09		-.1317				-.1432		-.1468	
	0.30		-.1508				-.1468		-.1468	
	0.51		-.1468				-.1468		-.1468	
	0.73								-.1508	
Shroud	0.13									.0884
	0.41									.1110
	0.62								-.1278	.1261
	0.81								-.1278	
	1.00								-.1166	.0920
Heat Shield		0.68								-.1468
		0.79								-.1468
		0.91								
		1.13	-.1468							
		1.25	-.1468							
		1.38	-.1468							
Star		0.00	-.1432							
		0.12				-.1468				-.1393
		0.23				-.1468				-.1393

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		-.0263	-.0335	-.0391	-.0286	-.0391	-.0417		-.0299
	0.30		-.0299	-.0335	-.0391	-.0312	-.0391	-.0391	-.0417	-.0299
	0.51		-.0299	-.0299	-.0391	-.0233	-.0365	-.0417	-.0417	-.0263
	0.73		-.0299		-.0365		-.0365		-.0391	
Nozzle 3	0.09		-.0299	-.0299	-.0417		-.0417		-.0417	-.0299
	0.30		-.0299	-.0299	-.0417		-.0417		-.0391	-.0299
	0.51		-.0299		-.0417		-.0391		-.0391	
	0.73		-.0299				-.0365			
Nozzle 6	0.09		-.0453				-.0453		-.0414	
	0.30		-.0414				-.0414		-.0378	
	0.51		-.0338				-.0338		-.0338	
	0.73								-.0302	
Shroud	0.13									.1357
	0.41									.1432
	0.62								-.0191	.1468
	0.81								-.0227	
	1.00								-.0414	.0979
Heat Shield		0.68								-.0115
		0.79								-.0115
		0.91								
		1.13	-.0151							
		1.25	-.0151							
		1.38	-.0191							
Star		0.00	.4372							
		0.12				.2450				.2411
		0.23				.1393				.1432

TABLE X. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		-.0431	-.0467	-.0362	-.0257	-.0388	-.0415		-.0431
	0.30		-.0467	-.0467	-.0362	-.0283	-.0362	-.0415	-.0388	-.0431
	0.51		-.0431	-.0467	-.0362	-.0204	-.0388	-.0415	-.0415	-.0431
	0.73		-.0431		-.0336		-.0362		-.0388	
Nozzle 3	0.09		-.0467	-.0467	-.0415		-.0415		-.0415	-.0467
	0.30		-.0467	-.0467	-.0415		-.0415		-.0415	-.0467
	0.51		-.0467		-.0415		-.0388		-.0362	
	0.73		-.0467				-.0362			
Nozzle 6	0.09		-.0559				-.0520		-.0520	
	0.30		-.0484				-.0520		-.0484	
	0.51		-.0369				-.0405		-.0444	
	0.73								-.0405	
Shroud	0.13									.1224
	0.41									.1339
	0.62								-.0405	.1455
	0.81								-.0484	
	1.00								-.0559	.0961
Heat Shield		0.68								-.0253
		0.79								-.0293
		0.91								
		1.13	-.0293							
		1.25	-.0329							
		1.38	-.0369							
Star		0.00	.4298							
		0.12				.2363				.2327
		0.23				.1264				.1264

TABLE X.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 23.4$										
Nozzle 2	0.09		-.0430	-.0503	-.0414	-.0309	-.0414	-.0466		-.0503
	0.30		-.0503	-.0503	-.0388	-.0335	-.0414	-.0466	-.0440	-.0466
	0.51		-.0503	-.0503	-.0414	-.0256	-.0414	-.0440	-.0440	-.0503
	0.73		-.0503		-.0388		-.0388		-.0440	
Nozzle 3	0.09		-.0503	-.0503	-.0440		-.0440		-.0440	-.0503
	0.30		-.0503	-.0503	-.0440		-.0440		-.0440	-.0503
	0.51		-.0503		-.0466		-.0414		-.0440	
	0.73		-.0503				-.0414			
Nozzle 6	0.09		-.0634				-.0595		-.0555	
	0.30		-.0519				-.0595		-.0555	
	0.51		-.0443				-.0519		-.0519	
	0.73								-.0480	
Shroud	0.13									.0962
	0.41									.1077
	0.62								-.0555	.1117
	0.81								-.0595	
	1.00								-.0634	.0887
Heat Shield		0.68								-.0289
		0.79								-.0328
		0.91								
		1.13	-.0328							
		1.25	-.0368							
		1.38	-.0443							
Star		0.00	.4270							
		0.12				.2257				.2257
		0.23				.1192				.1192

TABLE X. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.4$										
Nozzle 2	0.09		-.0539	-.0575	-.0466	-.0388	-.0466	-.0440		-.0575
	0.30		-.0575	-.0611	-.0440	-.0388	-.0466	-.0466	-.0466	-.0575
	0.51		-.0611	-.0647	-.0440	-.0335	-.0466	-.0466	-.0466	-.0611
	0.73		-.0611		-.0414		-.0440		-.0466	
Nozzle 3	0.09		-.0611	-.0611	-.0466		-.0466		-.0466	-.0647
	0.30		-.0647	-.0611	-.0440		-.0466		-.0466	-.0647
	0.51		-.0647		-.0440		-.0466		-.0466	
	0.73		-.0647				-.0466			
Nozzle 6	0.09		-.0709				-.0709		-.0670	
	0.30		-.0595				-.0670		-.0634	
	0.51		-.0519				-.0634		-.0634	
	0.73								-.0634	
Shroud	0.13									.0887
	0.41									.1077
	0.62								-.0670	.1192
	0.81								-.0709	
	1.00								-.0746	.0887
Heat Shield		0.68								-.0404
		0.79								-.0443
		0.91								
		1.13	-.0404							
		1.25	-.0443							
		1.38	-.0480							
Star		0.00	.4155							
		0.12				.2257				.2217
		0.23				.1153				.1117

TABLE XI

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3148	-.3165	-.3115	-.2868	-.3103	-.3078	-.3078	-.3182
	0.30		-.3182	-.3199	-.3128	-.2979	-.3091	-.3091	-.3078	-.3165
	0.51		-.3182	-.3165	-.3103	-.2967	-.3066	-.3078	-.3066	-.3182
	0.73		-.3165		-.3078		-.3041		-.3053	
Nozzle 3	0.09		-.3182	-.3182	-.3078		-.3115		-.3115	-.3182
	0.30		-.3182	-.3165	-.3078		-.3115		-.3128	-.3182
	0.51		-.3165		-.3078		-.3078		-.3091	
	0.73		-.3165				-.3078			
Nozzle 6	0.09		-.3032				-.3103		-.2278	
	0.30		-.3067				-.3140		-.2906	
	0.51		-.3086				-.3157		-.3157	
	0.73								-.3176	
Shroud	0.13									.3662
	0.41									.4721
	0.62								-.3283	.3304
	0.81								-.3516	
	1.00								-.3320	.3052
Heat Shield		0.68								-.3122
		0.79								-.3122
		0.91								
		1.13	-.3140							
		1.25	-.3176							
		1.38	-.3176							
Star		0.00	-.2223							
		0.12				-.2223				-.2223
		0.23				-.2296				-.2261

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3167	-.3201	-.3152	-.2891	-.3090	-.3102	-.3127	-.3201
	0.30		-.3201	-.3201	-.3152	-.3003	-.3102	-.3102	-.3127	-.3201
	0.51		-.3201	-.3201	-.3152	-.2990	-.3077	-.3090	-.3114	-.3201
	0.73		-.3201		-.3139		-.3052		-.3077	
Nozzle 3	0.09		-.3201	-.3201	-.3127		-.3127		-.3152	-.3201
	0.30		-.3201	-.3201	-.3127		-.3152		-.3152	-.3201
	0.51		-.3201		-.3114		-.3102		-.3139	
	0.73		-.3201				-.3077			
Nozzle 6	0.09		-.3074				-.3145		-.2370	
	0.30		-.3110				-.3164		-.2803	
	0.51		-.3110				-.3164		-.3164	
	0.73								-.3200	
Shroud	0.13									.3491
	0.41									.4501
	0.62								-.3091	.3293
	0.81								-.3344	
	1.00								-.3344	.2860
Heat Shield		0.68								-.3110
		0.79								-.3128
		0.91								
		1.13	-.3200							
		1.25	-.3200							
		1.38	-.3200							
Star		0.00	-.2353							
		0.12				-.2370				-.2334
		0.23				-.2443				-.2353

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3167	-.3201	-.3130	-.2944	-.3093	-.3117	-.3130	-.3218
	0.30		-.3201	-.3218	-.3142	-.3018	-.3093	-.3105	-.3130	-.3201
	0.51		-.3201	-.3201	-.3155	-.2993	-.3105	-.3105	-.3130	-.3201
	0.73		-.3201		-.3142		-.3080		-.3105	
Nozzle 3	0.09		-.3201	-.3201	-.3130		-.3130		-.3155	-.3218
	0.30		-.3201	-.3184	-.3130		-.3130		-.3142	-.3218
	0.51		-.3218		-.3130		-.3130		-.3142	
	0.73		-.3201				-.3093			
Nozzle 6	0.09		-.3018				-.3071		-.2319	
	0.30		-.3071				-.3090		-.2696	
	0.51		-.3071				-.3108		-.3108	
	0.73								-.3125	
Shroud	0.13									.3577
	0.41									.4312
	0.62								-.2910	.3164
	0.81								-.3161	
	1.00								-.3305	.2483
Heat Shield		0.68								-.3090
		0.79								-.3071
		0.91								
		1.13	-.3144							
		1.25	-.3144							
		1.38	-.3144							
Star		0.00	-.2516							
		0.12				-.2516				-.2444
		0.23				-.2587				-.2444

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^0$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3249	-.3283	-.3062	-.2987	-.3136	-.3172	-.3197	-.3300
	0.30		-.3300	-.3318	-.3099	-.3062	-.3136	-.3147	-.3197	-.3283
	0.51		-.3318	-.3283	-.3159	-.3037	-.3136	-.3136	-.3172	-.3318
	0.73		-.3283		-.3172		-.3111		-.3147	
Nozzle 3	0.09		-.3249	-.3249	-.3147		-.3136		-.3172	-.3249
	0.30		-.3249	-.3249	-.3147		-.3147		-.3172	-.3249
	0.51		-.3249		-.3136		-.3136		-.3147	
	0.73		-.3249				-.3111			
Nozzle 6	0.09		-.3068				-.3210		-.2170	
	0.30		-.3158				-.3210		-.2655	
	0.51		-.3158				-.3229		-.3193	
	0.73								-.3248	
Shroud	0.13									.3986
	0.41									.4757
	0.62								-.2907	.2820
	0.81								-.3139	
	1.00								-.3373	.2281
Heat Shield		0.68								-.3175
		0.79								-.3175
		0.91								
		1.13	-.3229							
		1.25	-.3229							
		1.38	-.3210							
Star		0.00	-.2924							
		0.12				-.2978				-.2888
		0.23				-.2996				-.2852

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3468	-.3451	-.2991	-.2978	-.3016	-.3414	-.3426	-.3417
	0.30		-.3502	-.3434	-.3302	-.3127	-.3214	-.3290	-.3451	-.3417
	0.51		-.3485	-.3451	-.3389	-.3028	-.3226	-.3451	-.3451	-.3434
	0.73		-.3451		-.3389		-.3302		-.3414	
Nozzle 3	0.09		-.3451	-.3434	-.3439		-.3115		-.3065	-.3383
	0.30		-.3485	-.3451	-.3451		-.3278		-.3377	-.3247
	0.51		-.3502		-.3451		-.3302		-.3402	
	0.73		-.3468				-.3414			
Nozzle 6	0.09		-.2881				-.3130		-.2165	
	0.30		-.3095				-.3149		-.3113	
	0.51		-.3095				-.3149		-.3274	
	0.73								-.3274	
Shroud	0.13									.3716
	0.41									.4843
	0.62								-.3220	.3448
	0.81								-.3453	
	1.00								-.3274	.3144
Heat Shield		0.68								-.2397
		0.79								-.2541
		0.91								
		1.13	-.3149							
		1.25	-.3078							
		1.38	-.3042							
Star		0.00	-.2005							
		0.12				-.2309				-.2380
		0.23				-.2594				-.2594

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3508	-.3491	-.2981	-.2981	-.3067	-.3314	-.3476	-.3474
	0.30		-.3542	-.3474	-.3326	-.3141	-.3228	-.3314	-.3451	-.3457
	0.51		-.3542	-.3525	-.3427	-.3067	-.3289	-.3451	-.3451	-.3525
	0.73		-.3542		-.3414		-.3339		-.3451	
Nozzle 3	0.09		-.3525	-.3491	-.3451		-.3166		-.3092	-.3491
	0.30		-.3542	-.3508	-.3464		-.3302		-.3390	-.3339
	0.51		-.3542		-.3451		-.3314		-.3439	
	0.73		-.3542				-.3476			
Nozzle 6	0.09		-.2964				-.3143		-.2306	
	0.30		-.3160				-.3160		-.3035	
	0.51		-.3160				-.3160		-.3231	
	0.73								-.3249	
Shroud	0.13									.3513
	0.41									.4599
	0.62								-.3107	.3282
	0.81								-.3339	
	1.00								-.3320	.2891
Heat Shield		0.68								-.2465
		0.79								-.2661
		0.91								
		1.13	-.3160							
		1.25	-.3143							
		1.38	-.3107							
Star		0.00	-.2040							
		0.12				-.2377				-.2413
		0.23				-.2661				-.2644

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3518	-.3518	-.3063	-.3051	-.3152	-.3313	-.3462	-.3483
	0.30		-.3552	-.3432	-.3400	-.3251	-.3288	-.3425	-.3474	-.3483
	0.51		-.3552	-.3518	-.3474	-.3176	-.3375	-.3474	-.3474	-.3518
	0.73		-.3552		-.3412		-.3412		-.3462	
Nozzle 3	0.09		-.3552	-.3518	-.3474		-.3251		-.3125	-.3518
	0.30		-.3552	-.3501	-.3474		-.3338		-.3437	-.3398
	0.51		-.3552		-.3462		-.3400		-.3474	
	0.73		-.3552				-.3575			
Nozzle 6	0.09		-.3004				-.3130		-.2413	
	0.30		-.3237				-.3201		-.3201	
	0.51		-.3218				-.3166		-.3254	
	0.73								-.3254	
Shroud	0.13									.3525
	0.41									.4295
	0.62								-.2933	.3133
	0.81								-.3183	
	1.00								-.3327	.2488
Heat Shield		0.68								-.2449
		0.79								-.2682
		0.91								
		1.13	-.3201							
		1.25	-.3201							
		1.38	-.3166							
Star		0.00	-.1984							
		0.12				-.2306				-.2396
		0.23				-.2610				-.2629

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3585	-.3603	-.3251	-.3164	-.3226	-.3451	-.3599	-.3585
	0.30		-.3620	-.3381	-.3537	-.3389	-.3438	-.3550	-.3612	-.3568
	0.51		-.3654	-.3603	-.3562	-.3276	-.3537	-.3663	-.3637	-.3620
	0.73		-.3637		-.3537		-.3575		-.3637	
Nozzle 3	0.09		-.3620	-.3603	-.3575		-.3313		-.3325	-.3603
	0.30		-.3620	-.3603	-.3599		-.3451		-.3550	-.3347
	0.51		-.3620		-.3599		-.3513		-.3550	
	0.73		-.3654				-.3750			
Nozzle 6	0.09		-.3039				-.3164		-.2413	
	0.30		-.3361				-.3273		-.3308	
	0.51		-.3344				-.3200		-.3397	
	0.73								-.3379	
Shroud	0.13									.3976
	0.41									.4746
	0.62								-.2878	.2758
	0.81								-.3164	
	1.00								-.3397	.2204
Heat Shield		0.68								-.2520
		0.79								-.2700
		0.91								
		1.13	-.3344							
		1.25	-.3308							
		1.38	-.3290							
Star		0.00	-.2037							
		0.12				-.2342				-.2430
		0.23				-.2664				-.2664

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2345	-.2385	-.2300	-.2156	-.2300	-.2358	-.2358	-.2385
	0.30		-.2385	-.2385	-.2344	-.2300	-.2344	-.2344	-.2373	-.2385
	0.51		-.2385	-.2385	-.2373	-.2300	-.2344	-.2373	-.2358	-.2385
	0.73		-.2385		-.2373		-.2344		-.2358	
Nozzle 3	0.09		-.2385	-.2385	-.2373		-.2300		-.2315	-.2385
	0.30		-.2385	-.2385	-.2373		-.2329		-.2358	-.2385
	0.51		-.2385		-.2373		-.2344		-.2373	
	0.73		-.2385				-.2358			
Nozzle 6	0.09		-.2222				-.2284		-.2118	
	0.30		-.2284				-.2347		-.2347	
	0.51		-.2325				-.2347		-.2347	
	0.73								-.2347	
Shroud	0.13									.3570
	0.41									.4130
	0.62								-.2098	.2553
	0.81								-.2159	
	1.00								-.1973	.2221
Heat Shield		0.68								-.2284
		0.79								-.2306
		0.91								
		1.13	-.2347							
		1.25	-.2347							
		1.38	-.2347							
Star		0.00	-.1703							
		0.12				-.1703				-.1703
		0.23				-.1723				-.1703

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3^{0} inward and engines 1 and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -2^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2397	-.2436	-.2380	-.2221	-.2322	-.2424	-.2424	-.2436
	0.30		-.2436	-.2436	-.2395	-.2366	-.2380	-.2424	-.2453	-.2436
	0.51		-.2436	-.2436	-.2424	-.2351	-.2409	-.2424	-.2438	-.2436
	0.73		-.2436		-.2438		-.2395		-.2424	
Nozzle 3	0.09		-.2436	-.2436	-.2424		-.2380		-.2395	-.2436
	0.30		-.2436	-.2436	-.2424		-.2395		-.2409	-.2436
	0.51		-.2436		-.2424		-.2409		-.2424	
	0.73		-.2436				-.2395			
Nozzle 6	0.09		-.2297				-.2360		-.2152	
	0.30		-.2360				-.2424		-.2402	
	0.51		-.2360				-.2402		-.2424	
	0.73								-.2402	
Shroud	0.13									.3591
	0.41									.4279
	0.62								-.2089	.2254
	0.81								-.2152	
	1.00								-.2089	.2109
Heat Shield		0.68								-.2360
		0.79								-.2360
		0.91								
		1.13	-.2424							
		1.25	-.2402							
		1.38	-.2402							
Star		0.00	-.1776							
		0.12				-.1797				-.1776
		0.23				-.1859				-.1776

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2395	-.2435	-.2337	-.2221	-.2293	-.2409	-.2424	-.2435
	0.30		-.2435	-.2435	-.2380	-.2351	-.2366	-.2409	-.2438	-.2435
	0.51		-.2435	-.2435	-.2409	-.2337	-.2395	-.2424	-.2424	-.2435
	0.73		-.2435		-.2424		-.2395		-.2424	
Nozzle 3	0.09		-.2435	-.2435	-.2409		-.2351		-.2380	-.2435
	0.30		-.2435	-.2435	-.2409		-.2380		-.2409	-.2435
	0.51		-.2435		-.2409		-.2380		-.2409	
	0.73		-.2435				-.2380			
Nozzle 6	0.09		-.2313				-.2375		-.2228	
	0.30		-.2355				-.2417		-.2375	
	0.51		-.2375				-.2417		-.2438	
	0.73								-.2438	
Shroud	0.13									.3184
	0.41									.3541
	0.62								-.2145	.2114
	0.81								-.2228	
	1.00								-.2187	.1569
Heat Shield		0.68								-.2375
		0.79								-.2375
		0.91								
		1.13	-.2417							
		1.25	-.2438							
		1.38	-.2417							
Star		0.00	-.1955							
		0.12				-.1977				-.1935
		0.23				-.2040				-.1935

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2497	-.2537	-.2437	-.2321	-.2408	-.2497	-.2526	-.2537
	0.30		-.2537	-.2556	-.2452	-.2437	-.2437	-.2497	-.2540	-.2556
	0.51		-.2537	-.2517	-.2511	-.2437	-.2466	-.2511	-.2526	-.2556
	0.73		-.2556		-.2526		-.2482		-.2511	
Nozzle 3	0.09		-.2517	-.2517	-.2511		-.2408		-.2466	-.2517
	0.30		-.2517	-.2517	-.2497		-.2466		-.2497	-.2517
	0.51		-.2517		-.2511		-.2466		-.2511	
	0.73		-.2517				-.2466			
Nozzle 6	0.09		-.2321				-.2404		-.2155	
	0.30		-.2363				-.2404		-.2321	
	0.51		-.2363				-.2426		-.2446	
	0.73								-.2446	
Shroud	0.13									.3492
	0.41									.3805
	0.62								-.2175	.1596
	0.81								-.2280	
	1.00								-.2280	.1679
Heat Shield		0.68								-.2385
		0.79								-.2404
		0.91								
		1.13	-.2446							
		1.25	-.2446							
		1.38	-.2446							
Star		0.00	-.2072							
		0.12				-.2091				-.2050
		0.23				-.2133				-.2030

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.2008	-.1970	-.1961	-.1715	-.1932	-.1932	-.2049	-.1970
	0.30		-.2008	-.1990	-.2093	-.1845	-.1975	-.1961	-.2035	-.1970
	0.51		-.2008	-.2008	-.2064	-.1773	-.1961	-.2049	-.2035	-.1990
	0.73		-.1990		-.2019		-.1889		-.2035	
Nozzle 3	0.09		-.2008	-.1970	-.2078		-.1975		-.2004	-.1930
	0.30		-.2008	-.1990	-.2064		-.2035		-.2064	-.2008
	0.51		-.2008		-.2064		-.2004		-.2035	
	0.73		-.2008				-.1975			
Nozzle 6	0.09		-.1582				-.1789		-.1789	
	0.30		-.1706				-.1789		-.1914	
	0.51		-.1726				-.1809		-.1914	
	0.73								-.1892	
Shroud	0.13									.3600
	0.41									.4182
	0.62								-.1872	.2544
	0.81								-.2120	
	1.00								-.1955	.2212
Heat Shield		0.68								-.1643
		0.79								-.1643
		0.91								
		1.13	-.1831							
		1.25	-.1809							
		1.38	-.1809							
Star		0.00	-.0152							
		0.12				-.0836				-.1000
		0.23				-.1374				-.1374

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.3$										
Nozzle 2	0.09		-.2079	-.2059	-.1959	-.1742	-.1887	-.1887	-.2061	-.2079
	0.30		-.2119	-.2059	-.2090	-.1844	-.1930	-.2017	-.2061	-.2059
	0.51		-.2119	-.2119	-.2075	-.1800	-.1930	-.2061	-.2061	-.2099
	0.73		-.2119		-.2046		-.1844		-.2032	
Nozzle 3	0.09		-.2119	-.2099	-.2090		-.1959		-.2017	-.2059
	0.30		-.2119	-.2099	-.2075		-.1988		-.2090	-.2079
	0.51		-.2119		-.2075		-.1974		-.2046	
	0.73		-.2119				-.1945			
Nozzle 6	0.09		-.1690				-.1900		-.1900	
	0.30		-.1815				-.1900		-.2025	
	0.51		-.1836				-.1920		-.2046	
	0.73								-.1983	
Shroud	0.13									.3577
	0.41									.4310
	0.62								-.1941	.2240
	0.81								-.2129	
	1.00								-.2066	.2115
Heat Shield		0.68								-.1795
		0.79								-.1795
		0.91								
		1.13	-.1983							
		1.25	-.1961							
		1.38	-.1961							
Star		0.00	-.0248							
		0.12				-.0959				-.1147
		0.23				-.1502				-.1482

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.2158	-.2116	-.2059	-.1840	-.1883	-.1898	-.2145	-.2158
	0.30		-.2158	-.2077	-.2145	-.1912	-.1986	-.2030	-.2145	-.2158
	0.51		-.2158	-.2178	-.2145	-.1854	-.2001	-.2131	-.2145	-.2158
	0.73		-.2178		-.2131		-.1941		-.2145	
Nozzle 3	0.09		-.2178	-.2158	-.2145		-.1986		-.2102	-.2097
	0.30		-.2178	-.2158	-.2145		-.2030		-.2160	-.2116
	0.51		-.2178		-.2145		-.2044		-.2145	
	0.73		-.2178				-.1986			
Nozzle 6	0.09		-.1768				-.1956		-.1914	
	0.30		-.1851				-.1914		-.2041	
	0.51		-.1892				-.1977		-.2060	
	0.73								-.2041	
Shroud	0.13									.3226
	0.41									.3562
	0.62								-.1977	.2115
	0.81								-.2187	
	1.00								-.2187	.1547
Heat Shield		0.68								-.1851
		0.79								-.1851
		0.91								
		1.13	-.2060							
		1.25	-.2019							
		1.38	-.2019							
Star		0.00	-.0278							
		0.12				-.0990				-.1200
		0.23				-.1558				-.1536

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 552$; $p_j/p_\infty = 6.3$										
Nozzle 2	0.09		-.2213	-.2233	-.2144	-.1985	-.2014	-.2028	-.2260	-.2233
	0.30		-.2252	-.2113	-.2216	-.2072	-.2115	-.2202	-.2260	-.2233
	0.51		-.2274	-.2274	-.2245	-.1985	-.2144	-.2260	-.2260	-.2274
	0.73		-.2274		-.2231		-.2043		-.2260	
Nozzle 3	0.09		-.2274	-.2274	-.2245		-.2101		-.2187	-.2233
	0.30		-.2274	-.2274	-.2245		-.2144		-.2260	-.2153
	0.51		-.2274		-.2260		-.2158		-.2216	
	0.73		-.2274				-.2101			
Nozzle 6	0.09		-.1853				-.1977		-.2063	
	0.30		-.1958				-.1977		-.2146	
	0.51		-.1977				-.2019		-.2167	
	0.73								-.2124	
Shroud	0.13									.3410
	0.41									.3747
	0.62								-.2104	.1503
	0.81								-.2292	
	1.00								-.2356	.1587
Heat Shield		0.68								-.1936
		0.79								-.1914
		0.91								
		1.13	-.2167							
		1.25	-.2146							
		1.38	-.2124							
Star		0.00	-.0300							
		0.12				-.1013				-.1223
		0.23				-.1601				-.1601

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1848	-.1924	-.1726	-.1579	-.1763	-.1818	-.1818	-.1924
	0.30		-.1924	-.1899	-.1781	-.1763	-.1800	-.1726	-.1837	-.1924
	0.51		-.1949	-.1899	-.1818	-.1781	-.1818	-.1818	-.1837	-.1924
	0.73		-.1924		-.1818		-.1818		-.1837	
Nozzle 3	0.09		-.1924	-.1924	-.1837		-.1800		-.1781	-.1924
	0.30		-.1924	-.1924	-.1837		-.1818		-.1818	-.1873
	0.51		-.1949		-.1837		-.1818		-.1818	
	0.73		-.1949				-.1837			
Nozzle 6	0.09		-.1839				-.1947		-.1814	
	0.30		-.1894				-.1947		-.1972	
	0.51		-.1947				-.1947		-.1972	
	0.73								-.1947	
Shroud	0.13									.3443
	0.41									.3790
	0.62								-.1494	.1788
	0.81								-.1547	
	1.00								-.1494	.1441
Heat Shield		0.68								-.1894
		0.79								-.1919
		0.91								
		1.13	-.1947							
		1.25	-.1947							
		1.38	-.1947							
Star		0.00	-.1439							
		0.12				-.1466				-.1439
		0.23				-.1494				-.1439

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1776	-.1852	-.1744	-.1634	-.1763	-.1836	-.1854	-.1852
	0.30		-.1852	-.1852	-.1818	-.1818	-.1836	-.1799	-.1854	-.1852
	0.51		-.1852	-.1852	-.1854	-.1818	-.1854	-.1854	-.1873	-.1852
	0.73		-.1852		-.1873		-.1836		-.1873	
Nozzle 3	0.09		-.1852	-.1852	-.1873		-.1836		-.1818	-.1852
	0.30		-.1852	-.1852	-.1873		-.1854		-.1854	-.1852
	0.51		-.1852		-.1873		-.1854		-.1873	
	0.73		-.1852				-.1873			
Nozzle 6	0.09		-.1841				-.1896		-.1841	
	0.30		-.1896				-.1921		-.1948	
	0.51		-.1896				-.1921		-.1948	
	0.73								-.1948	
Shroud	0.13									.3507
	0.41									.3906
	0.62								-.1469	.1671
	0.81								-.1469	
	1.00								-.1469	.1511
Heat Shield		0.68								-.1896
		0.79								-.1921
		0.91								
		1.13	-.1948							
		1.25	-.1948							
		1.38	-.1948							
Star		0.00	-.1575							
		0.12				-.1575				-.1522
		0.23				-.1630				-.1522

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1751	-.1801	-.1707	-.1652	-.1744	-.1744	-.1817	-.1826
	0.30		-.1826	-.1826	-.1762	-.1799	-.1799	-.1762	-.1835	-.1826
	0.51		-.1826	-.1826	-.1835	-.1799	-.1817	-.1835	-.1835	-.1826
	0.73		-.1826		-.1835		-.1817		-.1835	
Nozzle 3	0.09		-.1826	-.1826	-.1835		-.1780		-.1780	-.1826
	0.30		-.1826	-.1826	-.1835		-.1817		-.1817	-.1826
	0.51		-.1826		-.1835		-.1835		-.1835	
	0.73		-.1826				-.1817			
Nozzle 6	0.09		-.1840				-.1815		-.1840	
	0.30		-.1840				-.1868		-.1920	
	0.51		-.1868				-.1895		-.1920	
	0.73								-.1920	
Shroud	0.13									.3166
	0.41									.3327
	0.62								-.1496	.1514
	0.81								-.1549	
	1.00								-.1549	.1434
Heat Shield		0.68								-.1868
		0.79								-.1868
		0.91								
		1.13	-.1920							
		1.25	-.1920							
		1.38	-.1920							
Star		0.00	-.1601							
		0.12				-.1654				-.1601
		0.23				-.1682				-.1601

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1852	-.1903	-.1836	-.1818	-.1818	-.1909	-.1928	-.1903
	0.30		-.1928	-.1928	-.1854	-.1909	-.1909	-.1854	-.1946	-.1928
	0.51		-.1928	-.1903	-.1909	-.1909	-.1909	-.1928	-.1946	-.1928
	0.73		-.1928		-.1946		-.1909		-.1946	
Nozzle 3	0.09		-.1928	-.1928	-.1946		-.1873		-.1891	-.1928
	0.30		-.1928	-.1928	-.1946		-.1909		-.1909	-.1928
	0.51		-.1928		-.1946		-.1928		-.1928	
	0.73		-.1928				-.1909			
Nozzle 6	0.09		-.1790				-.1923		-.1868	
	0.30		-.1896				-.1948		-.1948	
	0.51		-.1948				-.1948		-.1976	
	0.73								-.1976	
Shroud	0.13									.3470
	0.41									.3684
	0.62								-.1737	.1478
	0.81								-.1737	
	1.00								-.1737	.1478
Heat Shield		0.68								-.1923
		0.79								-.1948
		0.91								
		1.13	-.1976							
		1.25	-.1976							
		1.38	-.1976							
Star		0.00	-.1710							
		0.12				-.1737				-.1710
		0.23				-.1737				-.1710

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1079	-.1079	-.1263	-.1024	-.1153	-.1245	-.1245	-.1079
	0.30		-.1105	-.1130	-.1284	-.1061	-.1171	-.1245	-.1245	-.1029
	0.51		-.1130	-.1130	-.1245	-.1006	-.1153	-.1263	-.1245	-.1105
	0.73		-.1130		-.1171		-.1116		-.1263	
Nozzle 3	0.09		-.1155	-.1079	-.1284		-.1226		-.1245	-.1079
	0.30		-.1130	-.1105	-.1284		-.1245		-.1245	-.1155
	0.51		-.1130		-.1263		-.1226		-.1208	
	0.73		-.1155				-.1153			
Nozzle 6	0.09		-.1029				-.1134		-.1187	
	0.30		-.1029				-.1107		-.1213	
	0.51		-.1029				-.1134		-.1187	
	0.73								-.1187	
Shroud	0.13									.3433
	0.41									.3750
	0.62								-.1160	.1823
	0.81								-.1346	
	1.00								-.1346	.1559
Heat Shield		0.68								-.1001
		0.79								-.1029
		0.91								
		1.13	-.1054							
		1.25	-.1082							
		1.38	-.1082							
Star		0.00	.1665							
		0.12				.0425				.0266
		0.23				-.0315				-.0289

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 11.5$										
Nozzle 2	0.09		-.1244	-.1218	-.1283	-.1115	-.1152	-.1262	-.1262	-.1244
	0.30		-.1244	-.1244	-.1301	-.1133	-.1170	-.1283	-.1262	-.1244
	0.51		-.1244	-.1269	-.1283	-.1060	-.1152	-.1283	-.1262	-.1244
	0.73		-.1244		-.1244		-.1115		-.1262	
Nozzle 3	0.09		-.1294	-.1269	-.1262		-.1207		-.1283	-.1244
	0.30		-.1294	-.1294	-.1283		-.1188		-.1283	-.1294
	0.51		-.1294		-.1283		-.1188		-.1262	
	0.73		-.1294				-.1133			
Nozzle 6	0.09		-.1131				-.1131		-.1262	
	0.30		-.1103				-.1131		-.1237	
	0.51		-.1131				-.1156		-.1237	
	0.73								-.1237	
Shroud	0.13									.3634
	0.41									.3951
	0.62								-.1156	.1701
	0.81								-.1368	
	1.00								-.1342	.1623
Heat Shield		0.68								-.1103
		0.79								-.1156
		0.91								
		1.13	-.1209							
		1.25	-.1209							
		1.38	-.1209							
Star		0.00	.1676							
		0.12				.0379				.0246
		0.23				-.0310				-.0310

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1268	-.1268	-.1300	-.1171	-.1190	-.1300	-.1281	-.1293
	0.30		-.1318	-.1318	-.1300	-.1190	-.1208	-.1300	-.1300	-.1318
	0.51		-.1318	-.1318	-.1300	-.1134	-.1190	-.1281	-.1300	-.1318
	0.73		-.1318		-.1281		-.1171		-.1300	
Nozzle 3	0.09		-.1318	-.1318	-.1281		-.1226		-.1300	-.1318
	0.30		-.1318	-.1318	-.1300		-.1226		-.1300	-.1318
	0.51		-.1318		-.1300		-.1226		-.1281	
	0.73		-.1318				-.1153			
Nozzle 6	0.09		-.1233				-.1233		-.1314	
	0.30		-.1233				-.1233		-.1314	
	0.51		-.1233				-.1261		-.1339	
	0.73								-.1286	
Shroud	0.13									.3116
	0.41									.3569
	0.62								-.1286	.1525
	0.81								-.1419	
	1.00								-.1500	.1314
Heat Shield		0.68								-.1233
		0.79								-.1233
		0.91								
		1.13	-.1261							
		1.25	-.1261							
		1.38	-.1286							
Star		0.00	.1605							
		0.12				.0333				.0147
		0.23				-.0411				-.0358

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1346	-.1346	-.1304	-.1247	-.1286	-.1359	-.1341	-.1371
	0.30		-.1396	-.1371	-.1341	-.1304	-.1286	-.1378	-.1359	-.1396
	0.51		-.1396	-.1396	-.1341	-.1174	-.1265	-.1359	-.1359	-.1396
	0.73		-.1396		-.1341		-.1247		-.1359	
Nozzle 3	0.09		-.1396	-.1396	-.1359		-.1304		-.1341	-.1396
	0.30		-.1396	-.1421	-.1378		-.1304		-.1359	-.1396
	0.51		-.1421		-.1359		-.1286		-.1323	
	0.73		-.1421				-.1247			
Nozzle 6	0.09		-.1313				-.1313		-.1499	
	0.30		-.1286				-.1339		-.1446	
	0.51		-.1339				-.1339		-.1446	
	0.73								-.1446	
Shroud	0.13									.3434
	0.41									.3619
	0.62								-.1472	.1472
	0.81								-.1552	
	1.00								-.1685	.1446
Heat Shield		0.68								-.1339
		0.79								-.1366
		0.91								
		1.13	-.1366							
		1.25	-.1366							
		1.38	-.1394							
Star		0.00	.1577							
		0.12				.0277				.0119
		0.23				-.0465				-.0465

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1301	-.1373	-.1419	-.1366	-.1419	-.1419	-.1419	-.1445
	0.30		-.1481	-.1481	-.1419	-.1419	-.1419	-.1182	-.1472	-.1481
	0.51		-.1481	-.1481	-.1445	-.1419	-.1445	-.1472	-.1472	-.1481
	0.73		-.1481		-.1445		-.1445		-.1472	
Nozzle 3	0.09		-.1481	-.1481	-.1472		-.1445		-.1445	-.1481
	0.30		-.1481	-.1481	-.1498		-.1445		-.1445	-.1337
	0.51		-.1481		-.1498		-.1445		-.1472	
	0.73		-.1481				-.1445			
Nozzle 6	0.09		-.1317				-.1353		-.1353	
	0.30		-.1353				-.1353		-.1353	
	0.51		-.1353				-.1393		-.1393	
	0.73								-.1393	
Shroud	0.13									.3124
	0.41									.3235
	0.62								-.1091	.1376
	0.81								-.1091	
	1.00								-.0976	.0844
Heat Shield		0.68								-.1353
		0.79								-.1353
		0.91								
		1.13	-.1393							
		1.25	-.1393							
		1.38	-.1393							
Star		0.00	-.1166							
		0.12				-.1166				-.1166
		0.23				-.1202				-.1166

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1228	-.1301	-.1419	-.1340	-.1393	-.1419	-.1419	-.1337
	0.30		-.1373	-.1409	-.1393	-.1419	-.1419	-.1340	-.1445	-.1409
	0.51		-.1409	-.1409	-.1419	-.1419	-.1445	-.1445	-.1445	-.1409
	0.73		-.1409		-.1445		-.1419		-.1445	
Nozzle 3	0.09		-.1445	-.1445	-.1472		-.1419		-.1445	-.1445
	0.30		-.1445	-.1445	-.1445		-.1445		-.1445	-.1445
	0.51		-.1445		-.1445		-.1445		-.1445	
	0.73		-.1445				-.1445			
Nozzle 6	0.09		-.1317				-.1353		-.1353	
	0.30		-.1353				-.1393		-.1393	
	0.51		-.1353				-.1393		-.1393	
	0.73								-.1393	
Shroud	0.13									.3390
	0.41									.3541
	0.62								-.1091	.1452
	0.81								-.1091	
	1.00								-.1051	.1110
Heat Shield		0.68								-.1353
		0.79								-.1393
		0.91								
		1.13	-.1393							
		1.25	-.1393							
		1.38	-.1393							
Star		0.00	-.1202							
		0.12				-.1242				-.1202
		0.23				-.1242				-.1202

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1264	-.1372	-.1208	-.1208	-.1260	-.1155	-.1287	-.1409
	0.30		-.1445	-.1445	-.1260	-.1287	-.1287	-.1287	-.1313	-.1445
	0.51		-.1445	-.1445	-.1313	-.1287	-.1313	-.1339	-.1339	-.1445
	0.73		-.1445		-.1313		-.1313		-.1339	
Nozzle 3	0.09		-.1445	-.1445	-.1313		-.1287		-.1287	-.1445
	0.30		-.1445	-.1445	-.1339		-.1313		-.1313	-.1445
	0.51		-.1445		-.1339		-.1313		-.1313	
	0.73		-.1445				-.1313			
Nozzle 6	0.09		-.1277				-.1316		-.1316	
	0.30		-.1316				-.1316		-.1316	
	0.51		-.1353				-.1353		-.1353	
	0.73								-.1353	
Shroud	0.13									.2903
	0.41									.2978
	0.62								-.1126	.1270
	0.81								-.1165	
	1.00								-.1126	.1004
Heat Shield		0.68								-.1353
		0.79								-.1353
		0.91								
		1.13	-.1353							
		1.25	-.1392							
		1.38	-.1392							
Star		0.00	-.1277							
		0.12				-.1277				-.1277
		0.23				-.1316				-.1241

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1264	-.1409	-.1418	-.1445	-.1445	-.1418	-.1471	-.1409
	0.30		-.1409	-.1445	-.1418	-.1445	-.1445	-.1418	-.1471	-.1481
	0.51		-.1481	-.1445	-.1471	-.1445	-.1471	-.1471	-.1471	-.1481
	0.73		-.1481		-.1471		-.1471		-.1497	
Nozzle 3	0.09		-.1481	-.1445	-.1471		-.1445		-.1471	-.1481
	0.30		-.1481	-.1481	-.1471		-.1471		-.1471	-.1481
	0.51		-.1481		-.1471		-.1471		-.1471	
	0.73		-.1481				-.1471			
Nozzle 6	0.09		-.1241				-.1353		-.1353	
	0.30		-.1353				-.1353		-.1392	
	0.51		-.1392				-.1392		-.1392	
	0.73								-.1392	
Shroud	0.13									.3176
	0.41									.3140
	0.62								-.1162	.1425
	0.81								-.1241	
	1.00								-.1162	.1122
Heat Shield		0.68								-.1392
		0.79								-.1392
		0.91								
		1.13	-.1392							
		1.25	-.1392							
		1.38	-.1392							
Star		0.00	-.1392							
		0.12				-.1392				-.1392
		0.23				-.1392				-.1353

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.5$										
Nozzle 2	0.09		-.0338	-.0338	-.0417	-.0338	-.0417	-.0522	-.0470	-.0338
	0.30		-.0480	-.0443	-.0417	-.0338	-.0417	-.0522	-.0496	-.0411
	0.51		-.0411	-.0411	-.0417	-.0286	-.0417	-.0496	-.0522	-.0411
	0.73		-.0411		-.0365		-.0391		-.0496	
Nozzle 3	0.09		-.0411	-.0411	-.0496		-.0470		-.0470	-.0443
	0.30		-.0443	-.0411	-.0496		-.0470		-.0417	-.0443
	0.51		-.0443		-.0496		-.0391		-.0417	
	0.73		-.0443				-.0417			
Nozzle 6	0.09		-.0460				-.0345		-.0345	
	0.30		-.0345				-.0345		-.0384	
	0.51		-.0233				-.0273		-.0345	
	0.73								-.0345	
Shroud	0.13									.3482
	0.41									.3482
	0.62								-.0345	.1531
	0.81								-.0420	
	1.00								-.0572	.1041
Heat Shield		0.68								-.0122
		0.79								-.0158
		0.91								
		1.13	-.0158							
		1.25	-.0158							
		1.38	-.0197							
Star		0.00	.4342							
		0.12				.2582				.2280
		0.23				.1455				.1455

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -2^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.5$										
Nozzle 2	0.09		-.0542	-.0542	-.0443	-.0338	-.0443	-.0496	-.0417	-.0578
	0.30		-.0614	-.0614	-.0443	-.0365	-.0443	-.0496	-.0496	-.0578
	0.51		-.0614	-.0614	-.0443	-.0286	-.0443	-.0496	-.0496	-.0578
	0.73		-.0614		-.0391		-.0391		-.0496	
Nozzle 3	0.09		-.0614	-.0614	-.0496		-.0417		-.0417	-.0614
	0.30		-.0614	-.0614	-.0496		-.0496		-.0443	-.0614
	0.51		-.0614		-.0522		-.0417		-.0417	
	0.73		-.0614				-.0443			
Nozzle 6	0.09		-.0673				-.0598		-.0598	
	0.30		-.0562				-.0562		-.0598	
	0.51		-.0483				-.0522		-.0598	
	0.73								-.0598	
Shroud	0.13									.3416
	0.41									.3567
	0.62								-.0598	.1449
	0.81								-.0673	
	1.00								-.0824	.1031
Heat Shield		0.68								-.0371
		0.79								-.0332
		0.91								
		1.13	-.0371							
		1.25	-.0407							
		1.38	-.0407							
Star		0.00	.4135							
		0.12				.2395				.2092
		0.23				.1219				.1258

TABLE XI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.5$										
Nozzle 2	0.09		-.0506	-.0470	-.0417	-.0338	-.0443	-.0522	-.0496	-.0542
	0.30		-.0578	-.0614	-.0443	-.0365	-.0443	-.0496	-.0496	-.0578
	0.51		-.0578	-.0614	-.0443	-.0312	-.0443	-.0522	-.0496	-.0578
	0.73		-.0578		-.0391		-.0417		-.0496	
Nozzle 3	0.09		-.0578	-.0578	-.0496		-.0417		-.0496	-.0578
	0.30		-.0614	-.0578	-.0496		-.0417		-.0443	-.0650
	0.51		-.0650		-.0522		-.0443		-.0443	
	0.73		-.0650				-.0443			
Nozzle 6	0.09		-.0677				-.0601		-.0601	
	0.30		-.0562				-.0562		-.0601	
	0.51		-.0486				-.0526		-.0601	
	0.73								-.0601	
Shroud	0.13									.2917
	0.41									.2956
	0.62								-.0601	.1215
	0.81								-.0677	
	1.00								-.0752	.0989
Heat Shield		0.68								-.0335
		0.79								-.0335
		0.91								
		1.13	-.0371							
		1.25	-.0411							
		1.38	-.0411							
Star		0.00	.4129							
		0.12				.2388				.2122
		0.23				.1215				.1215

TABLE XI. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (double flare) with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.6$										
Nozzle 2	0.09		-.0575	-.0394	-.0522	-.0338	-.0443	-.0496	-.0522	-.0575
	0.30		-.0647	-.0719	-.0496	-.0391	-.0496	-.0549	-.0522	-.0647
	0.51		-.0719	-.0755	-.0443	-.0312	-.0417	-.0549	-.0549	-.0719
	0.73		-.0719		-.0391		-.0443		-.0522	
Nozzle 3	0.09		-.0719	-.0719	-.0549		-.0496		-.0575	-.0539
	0.30		-.0719	-.0683	-.0575		-.0496		-.0496	-.0828
	0.51		-.0792		-.0575		-.0496		-.0443	
	0.73		-.0792				-.0496			
Nozzle 6	0.09		-.0742				-.0742		-.0742	
	0.30		-.0706				-.0742		-.0742	
	0.51		-.0627				-.0706		-.0706	
	0.73								-.0742	
Shroud	0.13									.3107
	0.41									.3107
	0.62								-.0706	.1317
	0.81								-.0782	
	1.00								-.0782	.1012
Heat Shield		0.68								-.0476
		0.79								-.0476
		0.91								
		1.13	-.0476							
		1.25	-.0476							
		1.38	-.0516							
Star		0.00	.4099							
		0.12				.2306				.2040
		0.23				.1163				.1202

TABLE XII

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = 0°$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$							
Nozzle 2	0.09		-.2812	-.2812	-.2747	-.2647	-.2784	-.2809	-.2871	-.2829
	0.30		-.2796	-.2796	-.2784	-.2672	-.2784	-.2784	-.2796	-.2796
	0.51		-.2796	-.2779	-.2796	-.2710	-.2772	-.2772	-.2772	-.2779
	0.73		-.2779		-.2747		-.2747		-.2759	
Nozzle 3	0.09		-.2829	-.2846	-.2846		-.2796		-.2772	-.2829
	0.30		-.2796	-.2796	-.2796		-.2796		-.2784	-.2796
	0.51		-.2796		-.2784		-.2784		-.2784	
	0.73		-.2796				-.2784			
Nozzle 6	0.09		-.2832				-.2832		-.2778	
	0.30		-.2761				-.2761		-.2778	
	0.51		-.2761				-.2778		-.2778	
	0.73								-.2778	
Shroud	0.13									
	0.41									
	0.62								-.3206	.2309
	0.81								-.3581	
	1.00								-.3296	.2844
Heat Shield		0.68								-.2742
		0.79								-.2742
		0.91								
		1.13	-.2761							
		1.25	-.2761							
		1.38	-.2761							
Star		0.00	-.2171							
		0.12				-.2171				-.2136
		0.23				-.2224				-.2153

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.2856	-.2839	-.2732	-.2670	-.2769	-.2819	-.2844	-.2856
	0.30		-.2839	-.2839	-.2757	-.2670	-.2782	-.2782	-.2782	-.2839
	0.51		-.2839	-.2822	-.2769	-.2695	-.2769	-.2757	-.2757	-.2839
	0.73		-.2839		-.2732		-.2732		-.2757	
Nozzle 3	0.09		-.2890	-.2907	-.2844		-.2806		-.2769	-.2856
	0.30		-.2839	-.2839	-.2782		-.2782		-.2757	-.2839
	0.51		-.2839		-.2769		-.2769		-.2757	
	0.73		-.2822				-.2757			
Nozzle 6	0.09		-.2833				-.2868		-.2797	
	0.30		-.2797				-.2814		-.2833	
	0.51		-.2797				-.2833		-.2833	
	0.73								-.2833	
Shroud	0.13									
	0.41									
	0.62								-.3155	.2070
	0.81								-.3515	
	1.00								-.3354	.2681
Heat Shield		0.68								-.2779
		0.79								-.2779
		0.91								
		1.13	-.2814							
		1.25	-.2797							
		1.38	-.2797							
Star		0.00	-.2348							
		0.12				-.2366				-.2293
		0.23				-.2402				-.2276

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2837	-.2820	-.2750	-.2688	-.2799	-.2837	-.2911	-.2820
	0.30		-.2820	-.2820	-.2775	-.2713	-.2799	-.2787	-.2799	-.2820
	0.51		-.2820	-.2786	-.2775	-.2725	-.2787	-.2787	-.2799	-.2820
	0.73		-.2803		-.2762		-.2762		-.2799	
Nozzle 3	0.09		-.2820	-.2837	-.2861		-.2837		-.2787	-.2837
	0.30		-.2803	-.2803	-.2787		-.2799		-.2775	-.2803
	0.51		-.2803		-.2787		-.2787		-.2775	
	0.73		-.2803				-.2762			
Nozzle 6	0.09		-.2821				-.2840		-.2786	
	0.30		-.2786				-.2821		-.2840	
	0.51		-.2804				-.2821		-.2840	
	0.73								-.2840	
Shroud	0.13									
	0.41									
	0.62								-.3072	.1819
	0.81								-.3377	
	1.00								-.3359	.2158
Heat Shield		0.68								-.2768
		0.79								-.2786
		0.91								
		1.13	-.2786							
		1.25	-.2786							
		1.38	-.2786							
Star		0.00	-.2499							
		0.12				-.2535				-.2463
		0.23				-.2553				-.2445

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2926	-.2926	-.2822	-.2772	-.2909	-.2921	-.2921	-.2960
	0.30		-.2943	-.2977	-.2859	-.2822	-.2896	-.2896	-.2896	-.2926
	0.51		-.2926	-.2926	-.2871	-.2822	-.2884	-.2884	-.2884	-.2926
	0.73		-.2926		-.2847		-.2859		-.2871	
Nozzle 3	0.09		-.2926	-.2960	-.2933		-.2896		-.2871	-.2943
	0.30		-.2926	-.2926	-.2884		-.2896		-.2871	-.2943
	0.51		-.2926		-.2871		-.2884		-.2847	
	0.73		-.2926				-.2859			
Nozzle 6	0.09		-.2865				-.2955		-.2652	
	0.30		-.2865				-.2936		-.2901	
	0.51		-.2901				-.2955		-.3026	
	0.73								-.3009	
Shroud	0.13									
	0.41									
	0.62								-.3080	.1761
	0.81								-.3312	
	1.00								-.3402	.1850
Heat Shield		0.68								-.2901
		0.79								-.2901
		0.91								
		1.13	-.2901							
		1.25	-.2901							
		1.38	-.2901							
Star		0.00	-.2776							
		0.12				-.2776				-.2740
		0.23				-.2794				-.2723

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3149	-.2997	-.3163	-.2877	-.3101	-.2939	-.3113	-.3099
	0.30		-.3200	-.3200	-.3150	-.2952	-.3113	-.3113	-.3138	-.3183
	0.51		-.3200	-.3183	-.3138	-.2852	-.3076	-.3138	-.3126	-.3183
	0.73		-.3183		-.3126		-.3001		-.3126	
Nozzle 3	0.09		-.3200	-.3183	-.3175		-.3138		-.3138	-.3082
	0.30		-.3217	-.3183	-.3175		-.3138		-.3138	-.3200
	0.51		-.3200		-.3150		-.3138		-.3113	
	0.73		-.3183				-.3088			
Nozzle 6	0.09		-.2734				-.2950		-.3254	
	0.30		-.2879				-.2967		-.3129	
	0.51		-.2879				-.2896		-.3219	
	0.73								-.3093	
Shroud	0.13									
	0.41									
	0.62								-.3272	.2312
	0.81								-.3630	
	1.00								-.3290	.2831
Heat Shield		0.68								-.2717
		0.79								-.2717
		0.91								
		1.13	-.3003							
		1.25	-.3003							
		1.38	-.2986							
Star		0.00	-.2019							
		0.12				-.2359				-.2377
		0.23				-.2610				-.2556

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3166	-.3012	-.3221	-.2911	-.3122	-.2998	-.3159	-.3097
	0.30		-.3251	-.3234	-.3184	-.2961	-.3122	-.3184	-.3209	-.3217
	0.51		-.3268	-.3217	-.3159	-.2862	-.3147	-.3184	-.3184	-.3234
	0.73		-.3234		-.3147		-.3060		-.3172	
Nozzle 3	0.09		-.3217	-.3200	-.3209		-.3172		-.3184	-.3131
	0.30		-.3234	-.3217	-.3209		-.3159		-.3172	-.3234
	0.51		-.3234		-.3172		-.3159		-.3147	
	0.73		-.3217				-.3147			
Nozzle 6	0.09		-.2841				-.3040		-.3166	
	0.30		-.2931				-.3040		-.3184	
	0.51		-.2931				-.2950		-.3274	
	0.73								-.3166	
Shroud	0.13									
	0.41									
	0.62								-.3220	.2114
	0.81								-.3544	
	1.00								-.3364	.2674
Heat Shield		0.68								-.2931
		0.79								-.2931
		0.91								
		1.13	-.3057							
		1.25	-.3057							
		1.38	-.3057							
Star		0.00	-.2084							
		0.12				-.2409				-.2482
		0.23				-.2679				-.2643

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3180	-.3078	-.3179	-.2906	-.3104	-.2955	-.3141	-.3095
	0.30		-.3230	-.3230	-.3166	-.2931	-.3117	-.3166	-.3166	-.3214
	0.51		-.3247	-.3214	-.3154	-.2856	-.3117	-.3154	-.3141	-.3230
	0.73		-.3230		-.3104		-.3042		-.3141	
Nozzle 3	0.09		-.3230	-.3146	-.3166		-.3141		-.3141	-.3146
	0.30		-.3230	-.3230	-.3179		-.3141		-.3141	-.3230
	0.51		-.3247		-.3141		-.3166		-.3129	
	0.73		-.3247				-.3166			
Nozzle 6	0.09		-.2896				-.3022		-.3148	
	0.30		-.2968				-.3022		-.3166	
	0.51		-.2968				-.2951		-.3220	
	0.73								-.3148	
Shroud	0.13									
	0.41									
	0.62								-.3112	.1806
	0.81								-.3400	
	1.00								-.3365	.2185
Heat Shield		0.68								-.3003
		0.79								-.3041
		0.91								
		1.13	-.3058							
		1.25	-.3058							
		1.38	-.3058							
Star		0.00	-.2085							
		0.12				-.2428				-.2464
		0.23				-.2679				-.2625

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3227	-.3158	-.3188	-.2977	-.3113	-.3089	-.3374	-.3193
	0.30		-.3244	-.3278	-.3213	-.2927	-.3138	-.3163	-.3188	-.3261
	0.51		-.3261	-.3244	-.3200	-.2853	-.3175	-.3213	-.3200	-.3261
	0.73		-.3278		-.3126		-.3076		-.3213	
Nozzle 3	0.09		-.3278	-.3261	-.3200		-.3175		-.3188	-.3261
	0.30		-.3278	-.3278	-.3200		-.3200		-.3213	-.3278
	0.51		-.3278		-.3200		-.3250		-.3175	
	0.73		-.3278				-.3200			
Nozzle 6	0.09		-.3022				-.3112		-.3131	
	0.30		-.3058				-.3131		-.3202	
	0.51		-.3095				-.3058		-.3239	
	0.73								-.3220	
Shroud	0.13									
	0.41									
	0.62								-.3148	.1733
	0.81								-.3382	
	1.00								-.3436	.1842
Heat Shield		0.68								-.3076
		0.79								-.3148
		0.91								
		1.13	-.3148							
		1.25	-.3148							
		1.38	-.3148							
Star		0.00	-.2121							
		0.12				-.2572				-.2482
		0.23				-.2788				-.2698

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
			$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$							
Nozzle 2	0.09		-.2063	-.2023	-.2050	-.1992	-.2094	-.2007	-.2123	-.1963
	0.30		-.2142	-.2142	-.2137	-.2036	-.2137	-.2166	-.2181	-.2123
	0.51		-.2142	-.2142	-.2152	-.2050	-.2123	-.2166	-.2166	-.2123
	0.73		-.2123		-.2123		-.2108		-.2166	
Nozzle 3	0.09		-.2123	-.2003	-.2137		-.2108		-.2123	-.2003
	0.30		-.2123	-.2103	-.2166		-.2137		-.2137	-.2123
	0.51		-.2123		-.2166		-.2137		-.2137	
	0.73		-.2123				-.2123			
Nozzle 6	0.09		-.2150				-.2213		-.2191	
	0.30		-.2170				-.2170		-.2170	
	0.51		-.2150				-.2150		-.2150	
	0.73								-.2128	
Shroud	0.13									
	0.41									
	0.62								-.2150	.1990
	0.81								-.2255	
	1.00								-.2025	.1990
Heat Shield		0.68								-.2066
		0.79								-.2086
		0.91								
		1.13	-.2108							
		1.25	-.2108							
		1.38	-.2108							
Star		0.00	-.1585							
		0.12				-.1585				-.1585
		0.23				-.1606				-.1585

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2133	-.2094	-.2079	-.2036	-.2123	-.2065	-.2123	-.2054
	0.30		-.2193	-.2193	-.2137	-.2065	-.2137	-.2166	-.2181	-.2193
	0.51		-.2193	-.2193	-.2152	-.2065	-.2152	-.2166	-.2166	-.2193
	0.73		-.2193		-.2137		-.2123		-.2166	
Nozzle 3	0.09		-.2173	-.2114	-.2152		-.2123		-.2137	-.2114
	0.30		-.2193	-.2173	-.2166		-.2152		-.2152	-.2193
	0.51		-.2193		-.2152		-.2152		-.2152	
	0.73		-.2193				-.2137			
Nozzle 6	0.09		-.2152				-.2193		-.2193	
	0.30		-.2173				-.2173		-.2173	
	0.51		-.2152				-.2152		-.2132	
	0.73								-.2152	
Shroud	0.13									
	0.41									
	0.62								-.2152	.1876
	0.81								-.2215	
	1.00								-.2090	.1835
Heat Shield		0.68								-.2132
		0.79								-.2132
		0.91								
		1.13	-.2132							
		1.25	-.2132							
		1.38	-.2132							
Star		0.00	-.1672							
		0.12				-.1672				-.1652
		0.23				-.1713				-.1652

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2173	-.2133	-.2065	-.2021	-.2123	-.2079	-.2152	-.2114
	0.30		-.2233	-.2233	-.2123	-.2050	-.2137	-.2166	-.2166	-.2233
	0.51		-.2233	-.2233	-.2137	-.2065	-.2137	-.2166	-.2166	-.2233
	0.73		-.2233		-.2108		-.2108		-.2152	
Nozzle 3	0.09		-.2233	-.2153	-.2137		-.2108		-.2123	-.2153
	0.30		-.2213	-.2213	-.2152		-.2137		-.2137	-.2213
	0.51		-.2213		-.2152		-.2137		-.2123	
	0.73		-.2213				-.2123			
Nozzle 6	0.09		-.2208				-.2249		-.2229	
	0.30		-.2229				-.2229		-.2229	
	0.51		-.2208				-.2208		-.2208	
	0.73								-.2208	
Shroud	0.13									
	0.41									
	0.62								-.2229	.1398
	0.81								-.2313	
	1.00								-.2229	.1337
Heat Shield		0.68								-.2188
		0.79								-.2188
		0.91								
		1.13	-.2208							
		1.25	-.2208							
		1.38	-.2208							
Star		0.00	-.1809							
		0.12				-.1809				-.1809
		0.23				-.1873				-.1809

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2329	-.2249	-.2166	-.2181	-.2238	-.2238	-.2195	-.2329
	0.30		-.2409	-.2409	-.2282	-.2224	-.2296	-.2296	-.2340	-.2429
	0.51		-.2429	-.2449	-.2296	-.2238	-.2311	-.2311	-.2325	-.2429
	0.73		-.2449		-.2253		-.2267		-.2325	
Nozzle 3	0.09		-.2409	-.2389	-.2325		-.2267		-.2238	-.2289
	0.30		-.2409	-.2409	-.2325		-.2296		-.2296	-.2429
	0.51		-.2429		-.2311		-.2296		-.2282	
	0.73		-.2429				-.2296			
Nozzle 6	0.09		-.2316				-.2380		-.2338	
	0.30		-.2338				-.2338		-.2338	
	0.51		-.2338				-.2338		-.2338	
	0.73								-.2338	
Shroud	0.13									
	0.41									
	0.62								-.2296	.1425
	0.81								-.2401	
	1.00								-.2338	.1342
Heat Shield		0.68								-.2316
		0.79								-.2316
		0.91								
		1.13	-.2316							
		1.25	-.2316							
		1.38	-.2316							
Star		0.00	-.2003							
		0.12				-.2003				-.1983
		0.23				-.2066				-.1983

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3^o inward and engines 1 and 4 gimbaled 6^o outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^o	45^o	90^o	135^o	180^o	225^o	270^o	315^o
$\alpha = 0^o$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.1824	-.1804	-.1864	-.1617	-.1849	-.1806	-.1820	-.1784
	0.30		-.1864	-.1864	-.1835	-.1603	-.1835	-.1849	-.1849	-.1844
	0.51		-.1864	-.1844	-.1806	-.1545	-.1791	-.1835	-.1820	-.1824
	0.73		-.1844		-.1733		-.1719		-.1806	
Nozzle 3	0.09		-.1864	-.1824	-.1849		-.1878		-.1835	-.1824
	0.30		-.1864	-.1844	-.1864		-.1878		-.1806	-.1864
	0.51		-.1864		-.1849		-.1849		-.1791	
	0.73		-.1864				-.1791			
Nozzle 6	0.09		-.1599				-.1641		-.1869	
	0.30		-.1621				-.1621		-.1807	
	0.51		-.1641				-.1641		-.1724	
	0.73								-.1724	
Shroud	0.13									
	0.41									
	0.62								-.1849	.2032
	0.81								-.2119	
	1.00								-.1932	.2032
Heat Shield		0.68								-.1599
		0.79								-.1621
		0.91								
		1.13	-.1621							
		1.25	-.1663							
		1.38	-.1663							
Star		0.00	-.0107							
		0.12				-.0957				-.0894
		0.23				-.1351				-.1310

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.2$										
Nozzle 2	0.09		-.1894	-.1894	-.1864	-.1617	-.1864	-.1806	-.1820	-.1894
	0.30		-.1934	-.1976	-.1835	-.1603	-.1849	-.1864	-.1849	-.1934
	0.51		-.1934	-.1934	-.1820	-.1574	-.1806	-.1849	-.1849	-.1934
	0.73		-.1934		-.1748		-.1733		-.1820	
Nozzle 3	0.09		-.1954	-.1934	-.1864		-.1907		-.1864	-.1954
	0.30		-.1954	-.1954	-.1864		-.1892		-.1820	-.1954
	0.51		-.1954		-.1849		-.1864		-.1791	
	0.73		-.1954				-.1806			
Nozzle 6	0.09		-.1751				-.1773		-.2044	
	0.30		-.1773				-.1773		-.1939	
	0.51		-.1815				-.1793		-.1939	
	0.73								-.1876	
Shroud	0.13									
	0.41									
	0.62								-.1961	.1867
	0.81								-.2211	
	1.00								-.2108	.1826
Heat Shield		0.68								-.1773
		0.79								-.1793
		0.91								
		1.13	-.1793							
		1.25	-.1815							
		1.38	-.1835							
Star		0.00	-.0224							
		0.12				-.1104				-.1019
		0.23				-.1522				-.1458

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.1934	-.1954	-.1876	-.1643	-.1876	-.1730	-.1891	-.1934
	0.30		-.1976	-.1976	-.1862	-.1628	-.1876	-.1876	-.1876	-.1976
	0.51		-.1976	-.1976	-.1847	-.1599	-.1847	-.1876	-.1862	-.1976
	0.73		-.1976		-.1775		-.1775		-.1847	
Nozzle 3	0.09		-.1976	-.1976	-.1876		-.1920		-.1862	-.1976
	0.30		-.1976	-.1976	-.1876		-.1891		-.1847	-.1996
	0.51		-.1976		-.1862		-.1876		-.1833	
	0.73		-.1976				-.1833			
Nozzle 6	0.09		-.1773				-.1773		-.2044	
	0.30		-.1793				-.1793		-.1961	
	0.51		-.1815				-.1793		-.1939	
	0.73								-.1898	
Shroud	0.13									
	0.41									
	0.62								-.1961	.1449
	0.81								-.2191	
	1.00								-.2169	.1324
Heat Shield		0.68								-.1793
		0.79								-.1815
		0.91								
		1.13	-.1815							
		1.25	-.1835							
		1.38	-.1835							
Star		0.00	-.0224							
		0.12				-.1124				-.1019
		0.23				-.1522				-.1458

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 2	0.09		-.2010	-.2010	-.2005	-.1757	-.1961	-.1829	-.2236	-.2030
	0.30		-.2030	-.2090	-.2005	-.1742	-.1947	-.1976	-.1961	-.2050
	0.51		-.2050	-.2090	-.1961	-.1699	-.1932	-.1976	-.1961	-.2050
	0.73		-.2050		-.1903		-.1874		-.1961	
Nozzle 3	0.09		-.2090	-.2070	-.1976		-.2005		-.1990	-.2070
	0.30		-.2090	-.2090	-.1976		-.1976		-.1961	-.2110
	0.51		-.2090		-.1961		-.1976		-.1947	
	0.73		-.2090				-.1947			
Nozzle 6	0.09		-.1874				-.1874		-.2104	
	0.30		-.1896				-.1896		-.2043	
	0.51		-.1916				-.1896		-.1999	
	0.73								-.1999	
Shroud	0.13									
	0.41									
	0.62								-.2104	.1373
	0.81								-.2314	
	1.00								-.2314	.1290
Heat Shield		0.68								-.1896
		0.79								-.1916
		0.91								
		1.13	-.1938							
		1.25	-.1958							
		1.38	-.1938							
Star		0.00	-.0241							
		0.12				-.1203				-.1015
		0.23				-.1560				-.1476

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1647	-.1545	-.1607	-.1589	-.1683	-.1497	-.1683	-.1369
	0.30		-.1697	-.1697	-.1757	-.1683	-.1757	-.1794	-.1812	-.1672
	0.51		-.1697	-.1697	-.1794	-.1720	-.1757	-.1812	-.1812	-.1697
	0.73		-.1697		-.1757		-.1757		-.1812	
Nozzle 3	0.09		-.1697	-.1444	-.1757		-.1738		-.1720	-.1369
	0.30		-.1697	-.1697	-.1794		-.1775		-.1775	-.1697
	0.51		-.1697		-.1812		-.1794		-.1775	
	0.73		-.1697				-.1775			
Nozzle 6	0.09		-.1736				-.1814		-.1789	
	0.30		-.1814				-.1814		-.1814	
	0.51		-.1814				-.1814		-.1814	
	0.73								-.1814	
Shroud	0.13									
	0.41									
	0.62								-.1550	.1536
	0.81								-.1628	
	1.00								-.1470	.1217
Heat Shield		0.68								-.1789
		0.79								-.1814
		0.91								
		1.13	-.1814							
		1.25	-.1814							
		1.38	-.1814							
Star		0.00	-.1309							
		0.12				-.1309				-.1309
		0.23				-.1337				-.1309

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1647	-.1647	-.1590	-.1572	-.1721	-.1590	-.1684	-.1519
	0.30		-.1698	-.1698	-.1739	-.1666	-.1757	-.1813	-.1813	-.1698
	0.51		-.1698	-.1698	-.1776	-.1684	-.1757	-.1813	-.1794	-.1698
	0.73		-.1698		-.1739		-.1739		-.1794	
Nozzle 3	0.09		-.1698	-.1647	-.1739		-.1739		-.1721	-.1443
	0.30		-.1698	-.1698	-.1794		-.1776		-.1757	-.1698
	0.51		-.1698		-.1794		-.1776		-.1776	
	0.73		-.1723				-.1757			
Nozzle 6	0.09		-.1787				-.1815		-.1787	
	0.30		-.1815				-.1815		-.1815	
	0.51		-.1815				-.1815		-.1815	
	0.73								-.1815	
Shroud	0.13									
	0.41									
	0.62								-.1549	.1592
	0.81								-.1576	
	1.00								-.1521	.1218
Heat Shield		0.68								-.1787
		0.79								-.1787
		0.91								
		1.13	-.1787							
		1.25	-.1787							
		1.38	-.1787							
Star		0.00	-.1335							
		0.12				-.1363				-.1310
		0.23				-.1416				-.1310

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1647	-.1647	-.1610	-.1573	-.1722	-.1704	-.1777	-.1545
	0.30		-.1697	-.1697	-.1722	-.1647	-.1741	-.1777	-.1777	-.1697
	0.51		-.1697	-.1697	-.1759	-.1686	-.1722	-.1777	-.1777	-.1697
	0.73		-.1697		-.1741		-.1722		-.1777	
Nozzle 3	0.09		-.1697	-.1647	-.1741		-.1741		-.1704	-.1621
	0.30		-.1697	-.1697	-.1777		-.1741		-.1741	-.1697
	0.51		-.1722		-.1777		-.1741		-.1759	
	0.73		-.1722				-.1741			
Nozzle 6	0.09		-.1814				-.1814		-.1814	
	0.30		-.1842				-.1842		-.1842	
	0.51		-.1814				-.1814		-.1842	
	0.73								-.1814	
Shroud	0.13									
	0.41									
	0.62								-.1653	.1249
	0.81								-.1734	
	1.00								-.1653	.1063
Heat Shield		0.68								-.1814
		0.79								-.1842
		0.91								
		1.13	-.1842							
		1.25	-.1842							
		1.38	-.1842							
Star		0.00	-.1467							
		0.12				-.1495				-.1467
		0.23				-.1548				-.1467

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1646	-.1696	-.1740	-.1611	-.1777	-.1758	-.1777	-.1671
	0.30		-.1823	-.1747	-.1795	-.1740	-.1795	-.1850	-.1832	-.1823
	0.51		-.1823	-.1848	-.1832	-.1758	-.1795	-.1850	-.1832	-.1848
	0.73		-.1848		-.1814		-.1795		-.1832	
Nozzle 3	0.09		-.1823	-.1722	-.1795		-.1777		-.1777	-.1646
	0.30		-.1848	-.1823	-.1832		-.1795		-.1814	-.1823
	0.51		-.1848		-.1850		-.1814		-.1814	
	0.73		-.1848				-.1814			
Nozzle 6	0.09		-.1841				-.1869		-.1869	
	0.30		-.1869				-.1869		-.1894	
	0.51		-.1869				-.1869		-.1869	
	0.73								-.1894	
Shroud	0.13									
	0.41									
	0.62								-.1814	.1379
	0.81								-.1869	
	1.00								-.1788	.1140
Heat Shield		0.68								-.1894
		0.79								-.1922
		0.91								
		1.13	-.1922							
		1.25	-.1922							
		1.38	-.1922							
Star		0.00	-.1602							
		0.12				-.1627				-.1602
		0.23				-.1683				-.1602

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1019	-.1044	-.1149	-.0982	-.1094	-.1149	-.1149	-.1019
	0.30		-.1044	-.1069	-.1131	-.0964	-.1113	-.1168	-.1149	-.1069
	0.51		-.1044	-.1069	-.1113	-.0909	-.1094	-.1149	-.1149	-.1044
	0.73		-.1044		-.1058		-.1058		-.1149	
Nozzle 3	0.09		-.1044	-.1019	-.1149		-.1168		-.1168	-.1044
	0.30		-.1069	-.1019	-.1149		-.1149		-.1131	-.1069
	0.51		-.1044		-.1149		-.1113		-.1113	
	0.73		-.1044				-.1076			
Nozzle 6	0.09		-.1000				-.0973		-.1131	
	0.30		-.0973				-.0948		-.1106	
	0.51		-.1000				-.0973		-.1026	
	0.73								-.1026	
Shroud	0.13									
	0.41									
	0.62								-.1131	.1645
	0.81								-.1237	
	1.00								-.1289	.1276
Heat Shield		0.68								-.0973
		0.79								-.1000
		0.91								
		1.13	-.0920							
		1.25	-.0920							
		1.38	-.0948							
Star		0.00	.1645							
		0.12				.0376				.0271
		0.23				-.0312				-.0312

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 11.4$										
Nozzle 2	0.09		-.1110	-.1163	-.1133	-.0987	-.1060	-.1152	-.1097	-.1136
	0.30		-.1136	-.1163	-.1097	-.0950	-.1078	-.1133	-.1115	-.1136
	0.51		-.1136	-.1136	-.1078	-.0913	-.1078	-.1115	-.1097	-.1136
	0.73		-.1136		-.1042		-.1023		-.1115	
Nozzle 3	0.09		-.1136	-.1136	-.1115		-.1133		-.1133	-.1163
	0.30		-.1163	-.1136	-.1133		-.1115		-.1115	-.1163
	0.51		-.1163		-.1115		-.1097		-.1078	
	0.73		-.1136				-.1078			
Nozzle 6	0.09		-.1101				-.0996		-.1179	
	0.30		-.1074				-.1021		-.1127	
	0.51		-.1074				-.1049		-.1101	
	0.73								-.1101	
Shroud	0.13									
	0.41									
	0.62								-.1154	.1551
	0.81								-.1312	
	1.00								-.1365	.1260
Heat Shield		0.68								-.1049
		0.79								-.1049
		0.91								
		1.13	-.0968							
		1.25	-.0996							
		1.38	-.1049							
Star		0.00	.1606							
		0.12				.0333				.0225
		0.23				-.0358				-.0330

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
α = -4°; q_∞ = 435; p_j/p_∞ = 11.4										
Nozzle 2	0.09		-.1113	-.1163	-.1133	-.1042	-.1078	-.1133	-.1115	-.1163
	0.30		-.1163	-.1163	-.1115	-.0987	-.1078	-.1115	-.1115	-.1163
	0.51		-.1138	-.1138	-.1097	-.0931	-.1097	-.1115	-.1115	-.1138
	0.73		-.1138		-.1060		-.1060		-.1115	
Nozzle 3	0.09		-.1163	-.1163	-.1115		-.1097		-.1133	-.1188
	0.30		-.1163	-.1163	-.1133		-.1115		-.1115	-.1163
	0.51		-.1163		-.1133		-.1115		-.1097	
	0.73		-.1163				-.1078			
Nozzle 6	0.09		-.1099				-.1046		-.1179	
	0.30		-.1071				-.1046		-.1152	
	0.51		-.1099				-.1071		-.1124	
	0.73								-.1124	
Shroud	0.13									
	0.41									
	0.62								-.1179	.1425
	0.81								-.1338	
	1.00								-.1418	.1133
Heat Shield		0.68								-.1071
		0.79								-.1099
		0.91								
		1.13	-.1019							
		1.25	-.1019							
		1.38	-.1071							
Star		0.00	.1611							
		0.12				.0335				.0229
		0.23				-.0356				-.0328

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 435$; $p_j/p_\infty = 11.5$										
Nozzle 2	0.09		-.1188	-.1239	-.1207	-.1115	-.1133	-.1207	-.1539	-.1188
	0.30		-.1214	-.1239	-.1188	-.1097	-.1133	-.1207	-.1207	-.1214
	0.51		-.1214	-.1214	-.1170	-.1023	-.1133	-.1207	-.1188	-.1188
	0.73		-.1214		-.1115		-.1115		-.1207	
Nozzle 3	0.09		-.1214	-.1214	-.1170		-.1152		-.1207	-.1239
	0.30		-.1239	-.1214	-.1207		-.1188		-.1207	-.1239
	0.51		-.1214		-.1207		-.1207		-.1152	
	0.73		-.1214				-.1133			
Nozzle 6	0.09		-.1156				-.1129		-.1262	
	0.30		-.1129				-.1129		-.1234	
	0.51		-.1156				-.1129		-.1182	
	0.73								-.1182	
Shroud	0.13									
	0.41									
	0.62								-.1289	.1439
	0.81								-.1395	
	1.00								-.1473	.1175
Heat Shield		0.68								-.1129
		0.79								-.1129
		0.91								
		1.13	-.0998							
		1.25	-.1051							
		1.38	-.1129							
Star		0.00	.1652							
		0.12				.0328				.0220
		0.23				-.0388				-.0363

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1157	-.1157	-.1259	-.1233	-.1285	-.1075	-.1285	-.1010
	0.30		-.1266	-.1266	-.1285	-.1285	-.1311	-.1311	-.1364	-.1266
	0.51		-.1266	-.1266	-.1338	-.1311	-.1311	-.1338	-.1338	-.1302
	0.73		-.1302		-.1311		-.1338		-.1338	
Nozzle 3	0.09		-.1302	-.1118	-.1338		-.1338		-.1311	-.0974
	0.30		-.1266	-.1266	-.1364		-.1338		-.1338	-.1266
	0.51		-.1302		-.1338		-.1364		-.1338	
	0.73		-.1338				-.1338			
Nozzle 6	0.09		-.1203				-.1243		-.1243	
	0.30		-.1243				-.1243		-.1279	
	0.51		-.1279				-.1279		-.1279	
	0.73								-.1279	
Shroud	0.13									
	0.41									
	0.62								-.1092	.1180
	0.81								-.1092	
	1.00								-.0977	.0649
Heat Shield		0.68								-.1243
		0.79								-.1243
		0.91								
		1.13	-.1279							
		1.25	-.1279							
		1.38	-.1279							
Star		0.00	-.1092							
		0.12				-.1092				-.1052
		0.23				-.1128				-.1052

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1083	-.1119	-.1257	-.1231	-.1362	-.1310	-.1283	-.1119
	0.30		-.1155	-.1155	-.1336	-.1310	-.1362	-.1362	-.1389	-.1191
	0.51		-.1191	-.1191	-.1362	-.1362	-.1362	-.1389	-.1389	-.1228
	0.73		-.1228		-.1336		-.1362		-.1389	
Nozzle 3	0.09		-.1264	-.1191	-.1362		-.1362		-.1310	-.1083
	0.30		-.1191	-.1228	-.1389		-.1362		-.1362	-.1228
	0.51		-.1228		-.1362		-.1389		-.1336	
	0.73		-.1264				-.1362			
Nozzle 6	0.09		-.1241				-.1277		-.1277	
	0.30		-.1277				-.1316		-.1277	
	0.51		-.1316				-.1316		-.1316	
	0.73								-.1316	
Shroud	0.13									
	0.41									
	0.62								-.1126	.1310
	0.81								-.1165	
	1.00								-.1050	.0777
Heat Shield		0.68								-.1277
		0.79								-.1277
		0.91								
		1.13	-.1277							
		1.25	-.1277							
		1.38	-.1277							
Star		0.00	-.1201							
		0.12				-.1201				-.1165
		0.23				-.1241				-.1165

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1010	-.1155	-.1257	-.1257	-.1313	-.1313	-.1257	-.1010
	0.30		-.1155	-.1155	-.1283	-.1283	-.1339	-.1339	-.1339	-.1191
	0.51		-.1191	-.1191	-.1313	-.1283	-.1313	-.1313	-.1339	-.1191
	0.73		-.1228		-.1257		-.1313		-.1339	
Nozzle 3	0.09		-.1228	-.1155	-.1313		-.1313		-.1283	-.1155
	0.30		-.1191	-.1191	-.1339		-.1339		-.1339	-.1191
	0.51		-.1228		-.1339		-.1339		-.1339	
	0.73		-.1228				-.1339			
Nozzle 6	0.09		-.1241				-.1316		-.1316	
	0.30		-.1316				-.1316		-.1316	
	0.51		-.1316				-.1316		-.1316	
	0.73								-.1316	
Shroud	0.13									
	0.41									
	0.62								-.1126	.1083
	0.81								-.1201	
	1.00								-.1086	.0852
Heat Shield		0.68								-.1277
		0.79								-.1277
		0.91								
		1.13	-.1277							
		1.25	-.1277							
		1.38	-.1277							
Star		0.00	-.1201							
		0.12				-.1201				-.1201
		0.23				-.1241				-.1201

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0976	-.1120	-.1261	-.1261	-.1340	-.1235	-.1288	-.1120
	0.30		-.1192	-.1192	-.1261	-.1314	-.1314	-.1340	-.1340	-.1192
	0.51		-.1228	-.1228	-.1314	-.1340	-.1340	-.1340	-.1340	-.1265
	0.73		-.1265		-.1340		-.1340		-.1314	
Nozzle 3	0.09		-.1265	-.1192	-.1340		-.1340		-.1314	-.1192
	0.30		-.1228	-.1228	-.1340		-.1340		-.1340	-.1265
	0.51		-.1301		-.1340		-.1340		-.1340	
	0.73		-.1301				-.1340			
Nozzle 6	0.09		-.1238				-.1238		-.1317	
	0.30		-.1317				-.1317		-.1317	
	0.51		-.1317				-.1317		-.1317	
	0.73								-.1317	
Shroud	0.13									
	0.41									
	0.62								-.1202	.1271
	0.81								-.1238	
	1.00								-.1202	.0890
Heat Shield		0.68								-.1317
		0.79								-.1317
		0.91								
		1.13	-.1353							
		1.25	-.1317							
		1.38	-.1353							
Star		0.00	-.1278							
		0.12				-.1317				-.1278
		0.23				-.1317				-.1238

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 23.5$										
Nozzle 2	0.09		-.0256	-.0328	-.0312	-.0207	-.0338	-.0338	-.0338	-.0328
	0.30		-.0328	-.0365	-.0312	-.0233	-.0312	-.0338	-.0338	-.0328
	0.51		-.0328	-.0328	-.0338	-.0128	-.0338	-.0338	-.0338	-.0292
	0.73		-.0328		-.0312		-.0286		-.0338	
Nozzle 3	0.09		-.0328	-.0292	-.0312		-.0338		-.0338	-.0328
	0.30		-.0328	-.0292	-.0312		-.0338		-.0338	-.0328
	0.51		-.0292		-.0391		-.0338		-.0338	
	0.73		-.0292				-.0338			
Nozzle 6	0.09		-.0598				-.0522		-.0483	
	0.30		-.0447				-.0407		-.0407	
	0.51		-.0407				-.0368		-.0368	
	0.73								-.0368	
Shroud	0.13									
	0.41									
	0.62								-.0292	.1337
	0.81								-.0368	
	1.00								-.0522	.0805
Heat Shield		0.68								-.0217
		0.79								-.0217
		0.91								
		1.13	-.0217							
		1.25	-.0217							
		1.38	-.0256							
Star		0.00	.4293							
		0.12				.2398				.2247
		0.23				.1297				.1376

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.7$										
Nozzle 2	0.09		-.0389	-.0462	-.0330	-.0198	-.0356	-.0356	-.0356	-.0462
	0.30		-.0462	-.0462	-.0303	-.0224	-.0330	-.0356	-.0356	-.0462
	0.51		-.0462	-.0462	-.0330	-.0171	-.0356	-.0356	-.0356	-.0462
	0.73		-.0462		-.0303		-.0303		-.0356	
Nozzle 3	0.09		-.0462	-.0462	-.0356		-.0356		-.0356	-.0462
	0.30		-.0462	-.0462	-.0356		-.0356		-.0356	-.0462
	0.51		-.0462		-.0356		-.0356		-.0356	
	0.73		-.0462				-.0330			
Nozzle 6	0.09		-.0554				-.0518		-.0518	
	0.30		-.0478				-.0518		-.0518	
	0.51		-.0363				-.0402		-.0442	
	0.73								-.0402	
Shroud	0.13									
	0.41									
	0.62								-.0402	.1424
	0.81								-.0478	
	1.00								-.0554	.0890
Heat Shield		0.68								-.0251
		0.79								-.0287
		0.91								
		1.13	-.0287							
		1.25	-.0287							
		1.38	-.0363							
Star		0.00	.4280							
		0.12				.2414				.2186
		0.23				.1309				.1309

TABLE XII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.6$										
Nozzle 2	0.09		-.0425	-.0497	-.0359	-.0227	-.0359	-.0385	-.0385	-.0497
	0.30		-.0497	-.0497	-.0332	-.0280	-.0359	-.0385	-.0385	-.0497
	0.51		-.0497	-.0497	-.0359	-.0201	-.0359	-.0385	-.0385	-.0497
	0.73		-.0497		-.0332		-.0332		-.0385	
Nozzle 3	0.09		-.0497	-.0497	-.0385		-.0385		-.0385	-.0497
	0.30		-.0497	-.0497	-.0385		-.0385		-.0385	-.0497
	0.51		-.0497		-.0385		-.0385		-.0385	
	0.73		-.0497				-.0359			
Nozzle 6	0.09		-.0592				-.0592		-.0556	
	0.30		-.0517				-.0517		-.0517	
	0.51		-.0441				-.0517		-.0517	
	0.73								-.0477	
Shroud	0.13									
	0.41									
	0.62								-.0517	.1083
	0.81								-.0556	
	1.00								-.0592	.0740
Heat Shield		0.68								-.0290
		0.79								-.0326
		0.91								
		1.13	-.0326							
		1.25	-.0326							
		1.38	-.0402							
Star		0.00	.4239							
		0.12				.2337				.2146
		0.23				.1234				.1234

TABLE XII. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to heat shield with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -8^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.6$										
Nozzle 2	0.09		-.0566	-.0602	-.0385	-.0306	-.0385	-.0438	-.0359	-.0602
	0.30		-.0602	-.0642	-.0385	-.0332	-.0385	-.0438	-.0438	-.0642
	0.51		-.0642	-.0642	-.0385	-.0280	-.0385	-.0438	-.0438	-.0642
	0.73		-.0642		-.0359		-.0359		-.0438	
Nozzle 3	0.09		-.0642	-.0642	-.0438		-.0359		-.0438	-.0642
	0.30		-.0642	-.0642	-.0438		-.0359		-.0438	-.0642
	0.51		-.0642		-.0438		-.0359		-.0385	
	0.73		-.0642				-.0385			
Nozzle 6	0.09		-.0668				-.0668		-.0668	
	0.30		-.0592				-.0668		-.0629	
	0.51		-.0513				-.0592		-.0592	
	0.73								-.0592	
Shroud	0.13									
	0.41									
	0.62								-.0668	.1277
	0.81								-.0668	
	1.00								-.0668	.0819
Heat Shield		0.68								-.0402
		0.79								-.0402
		0.91								
		1.13	-.0402							
		1.25	-.0438							
		1.38	-.0438							
Star		0.00	.4173							
		0.12				.2343				.2077
		0.23				.1201				.1201

TABLE XIII

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1478	-.1957	-.1991	-.1977	-.2004	-.2016	-.1427	-.0675
	0.30		-.1581	-.2077	-.2029	-.2004	-.2029	-.2103	-.1540	-.0623
	0.51		-.1940	-.2094	-.2016	-.1991	-.2053	-.2078	-.1878	-.1102
	0.73		-.2077		-.2004		-.2053		-.2016	
	0.94		-.2004							
Nozzle 3	0.09		-.1581	-.0623	-.1516		-.2029		-.2016	-.1957
	0.30		-.1718	-.0675	-.1677		-.2016		-.2016	-.2077
	0.51		-.2042		-.1991		-.2041		-.2029	
	0.73		-.2077				-.2041			
	0.94		-.1991				-.2029			
Nozzle 6	0.09		-.2313				-.2114		-.2114	
	0.30		-.2114				-.2095		-.2095	
	0.51		-.2095				-.2095		-.2095	
	0.73									
Star		0.00	-.1464							
		0.12				-.1500				-.1410
		0.23				-.1572				-.1410
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 3.3$										
Nozzle 2	0.09		-.1258	-.2415	-.2387	-.2350	-.2412	-.2387	-.1245	-.0509
	0.30		-.1463	-.2398	-.2375	-.2362	-.2387	-.2375	-.1455	-.0475
	0.51		-.1940	-.2365	-.2350	-.2350	-.2362	-.2387	-.1952	-.0901
	0.73		-.2314		-.2337		-.2350		-.2263	
	0.94		-.2325							
Nozzle 3	0.09		-.1395	-.0373	-.1381		-.2412		-.2424	-.2382
	0.30		-.1718	-.0424	-.1704		-.2387		-.2412	-.2415
	0.51		-.2178		-.2176		-.2375		-.2387	
	0.73		-.2348				-.2350			
	0.94		-.2325				-.2325			
Nozzle 6	0.09		-.2331				-.2260		-.2385	
	0.30		-.2385				-.2350		-.2385	
	0.51		-.2404				-.2385		-.2404	
	0.73									
Star		0.00	-.1919							
		0.12				-.2224				-.2116
		0.23				-.2368				-.2279

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1598	-.1940	-.2174	-.2249	-.2211	-.2198	-.1501	-.0744
	0.30		-.1649	-.2180	-.2186	-.2225	-.2287	-.2311	-.1700	-.0693
	0.51		-.2042	-.2214	-.2225	-.2237	-.2299	-.2311	-.2198	-.1171
	0.73		-.2197		-.2225		-.2299		-.2287	
	0.94		-.2198							
Nozzle 3	0.09		-.1685	-.0504	-.1425		-.2287		-.2237	-.1974
	0.30		-.1838	-.0608	-.1725		-.2274		-.2211	-.2163
	0.51		-.2163		-.2225		-.2299		-.2211	
	0.73		-.2180				-.2299			
	0.94		-.2198				-.2287			
Nozzle 6	0.09		-.2287				-.2214		-.2304	
	0.30		-.2287				-.2287		-.2287	
	0.51		-.2287				-.2287		-.2304	
	0.73									
Star		0.00	-.2016							
		0.12				-.2034				-.1999
		0.23				-.2070				-.1999
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.3$										
Nozzle 2	0.09		-.1534	-.2473	-.2386	-.2386	-.2423	-.2386	-.1392	-.0715
	0.30		-.1654	-.2456	-.2349	-.2361	-.2386	-.2398	-.1516	-.0698
	0.51		-.2098	-.2422	-.2374	-.2361	-.2374	-.2386	-.1976	-.1158
	0.73		-.2388		-.2349		-.2361		-.2262	
	0.94		-.2349							
Nozzle 3	0.09		-.1671	-.0475	-.1330		-.2423		-.2423	-.2439
	0.30		-.1892	-.0595	-.1590		-.2398		-.2423	-.2473
	0.51		-.2319		-.2100		-.2386		-.2411	
	0.73		-.2405				-.2374			
	0.94		-.2349				-.2349			
Nozzle 6	0.09		-.2377				-.2270		-.2377	
	0.30		-.2395				-.2360		-.2412	
	0.51		-.2412				-.2395		-.2412	
	0.73									
Star		0.00	-.1912							
		0.12				-.2180				-.2109
		0.23				-.2324				-.2288

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^o$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1694	-.2084	-.2269	-.2320	-.2308	-.2269	-.1732	-.1100
	0.30		-.1794	-.2305	-.2281	-.2295	-.2370	-.2420	-.1819	-.1083
	0.51		-.2168	-.2356	-.2320	-.2308	-.2407	-.2395	-.2244	-.1557
	0.73		-.2305		-.2320		-.2395		-.2382	
	0.94		-.2308							
Nozzle 3	0.09		-.1812	-.0946	-.1594		-.2345		-.2320	-.2084
	0.30		-.1982	-.1031	-.1782		-.2370		-.2295	-.2305
	0.51		-.2288		-.2257		-.2395		-.2320	
	0.73		-.2305				-.2395			
	0.94		-.2308				-.2370			
Nozzle 6	0.09		-.2344				-.2308		-.2469	
	0.30		-.2344				-.2344		-.2433	
	0.51		-.2379				-.2379		-.2398	
	0.73									
Star		0.00	-.2164							
		0.12				-.2164				-.2145
		0.23				-.2181				-.2164
$\alpha = -4^o$; $q_\infty = 645$; $p_j/p_\infty = 3.3$										
Nozzle 2	0.09		-.1691	-.2458	-.2432	-.2444	-.2457	-.2469	-.1796	-.1077
	0.30		-.1793	-.2441	-.2420	-.2420	-.2432	-.2457	-.1722	-.1060
	0.51		-.2186	-.2424	-.2407	-.2393	-.2407	-.2420	-.2033	-.1504
	0.73		-.2424		-.2407		-.2407		-.2307	
	0.94		-.2420							
Nozzle 3	0.09		-.1878	-.0890	-.1623		-.2469		-.2482	-.2475
	0.30		-.2033	-.1026	-.1734		-.2432		-.2482	-.2475
	0.51		-.2390		-.2107		-.2420		-.2457	
	0.73		-.2407				-.2420			
	0.94		-.2407				-.2393			
Nozzle 6	0.09		-.2441				-.2297		-.2423	
	0.30		-.2441				-.2387		-.2441	
	0.51		-.2441				-.2406		-.2441	
	0.73									
Star		0.00	-.1939							
		0.12				-.2262				-.2137
		0.23				-.2406				-.2333

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(a) $M_{\infty} = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1198	-.2528	-.2615	-.2615	-.2541	-.2465	-.2640	-.1471
	0.30		-.1454	-.2665	-.2714	-.2652	-.2665	-.2603	-.2677	-.1573
	0.51		-.2052	-.2665	-.2690	-.2677	-.2741	-.2690	-.2714	-.2120
	0.73		-.2614		-.2665		-.2753		-.2714	
	0.94		-.2714							
Nozzle 3	0.09		-.1403	-.1147	-.2541		-.2578		-.2590	-.2494
	0.30		-.1745	-.1471	-.2603		-.2665		-.2677	-.2648
	0.51		-.2358		-.2690		-.2741		-.2714	
	0.73		-.2648				-.2765			
	0.94		-.2690				-.2741			
Nozzle 6	0.09		-.2604				-.2587		-.2694	
	0.30		-.2659				-.2659		-.2694	
	0.51		-.2694				-.2694		-.2713	
	0.73									
Star		0.00	-.2336							
		0.12				-.2336				-.2336
		0.23				-.2372				-.2354
$\alpha = -8^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.3$										
Nozzle 2	0.09		-.1448	-.2591	-.2547	-.2560	-.2560	-.2436	-.2609	-.1652
	0.30		-.1669	-.2591	-.2547	-.2547	-.2547	-.2473	-.2436	-.1754
	0.51		-.2198	-.2557	-.2547	-.2523	-.2535	-.2510	-.2485	-.2181
	0.73		-.2540		-.2523		-.2523		-.2523	
	0.94		-.2523							
Nozzle 3	0.09		-.1652	-.1414	-.2510		-.2535		-.2572	-.2540
	0.30		-.1926	-.1652	-.2399		-.2535		-.2584	-.2626
	0.51		-.2421		-.2473		-.2523		-.2572	
	0.73		-.2523				-.2510			
	0.94		-.2523				-.2510			
Nozzle 6	0.09		-.2586				-.2442		-.2603	
	0.30		-.2603				-.2550		-.2567	
	0.51		-.2586				-.2567		-.2603	
	0.73									
Star		0.00	-.1994							
		0.12				-.2334				-.2263
		0.23				-.2513				-.2424

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0732	-.1585	-.1698	-.1595	-.1653	-.1566	-.0708	-.0315
	0.30		-.0930	-.1566	-.1770	-.1741	-.1770	-.1450	-.0882	-.0373
	0.51		-.1366	-.1765	-.1799	-.1785	-.1799	-.1653	-.1290	-.0553
	0.73		-.1725		-.1814		-.1814		-.1712	
	0.94		-.1843							
Nozzle 3	0.09		-.0870	-.0236	-.0737		-.1653		-.1727	-.1546
	0.30		-.1129	-.0353	-.1000		-.1756		-.1785	-.1585
	0.51		-.1526		-.1406		-.1785		-.1799	
	0.73		-.1765				-.1799			
	0.94		-.1799				-.1799			
Nozzle 6	0.09		-.1734				-.1797		-.1817	
	0.30		-.1797				-.1817		-.1817	
	0.51		-.1817				-.1859		-.1839	
	0.73									
Star		0.00	-.1296							
		0.12				-.1296				-.1276
		0.23				-.1359				-.1296
$\alpha = 0°$; $q_\infty = 552$; $p_j/p_\infty = 6.1$										
Nozzle 2	0.09		-.1176	-.1538	-.1410	-.1294	-.1381	-.1367	-.1031	-.0632
	0.30		-.1276	-.1538	-.1396	-.1294	-.1381	-.1381	-.1118	-.0652
	0.51		-.1458	-.1518	-.1381	-.1294	-.1352	-.1352	-.1294	-.0934
	0.73		-.1478		-.1352		-.1338		-.1338	
	0.94		-.1338							
Nozzle 3	0.09		-.1276	-.0652	-.1089		-.1410		-.1439	-.1538
	0.30		-.1398	-.0712	-.1205		-.1381		-.1425	-.1518
	0.51		-.1518		-.1352		-.1367		-.1381	
	0.73		-.1498				-.1367			
	0.94		-.1338				-.1338			
Nozzle 6	0.09		-.1439				-.1483		-.1483	
	0.30		-.1461				-.1483		-.1483	
	0.51		-.1483				-.1461		-.1483	
	0.73									
Star		0.00	-.0300							
		0.12				-.0996				-.0954
		0.23				-.1356				-.1314

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ø of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^o$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1011	-.1651	-.1725	-.1682	-.1711	-.1682	-.1029	-.0532
	0.30		-.1110	-.1711	-.1828	-.1797	-.1843	-.1769	-.1116	-.0591
	0.51		-.1452	-.1852	-.1843	-.1828	-.1872	-.1872	-.1421	-.0971
	0.73		-.1812		-.1814		-.1872		-.1725	
	0.94		-.1828							
Nozzle 3	0.09		-.1090	-.0430	-.0955		-.1754		-.1711	-.1631
	0.30		-.1271	-.0591	-.1159		-.1843		-.1828	-.1711
	0.51		-.1631		-.1537		-.1857		-.1843	
	0.73		-.1852				-.1872			
	0.94		-.1828				-.1857			
Nozzle 6	0.09		-.1792				-.1792		-.1834	
	0.30		-.1834				-.1834		-.1855	
	0.51		-.1855				-.1897		-.1897	
	0.73									
Star		0.00	-.1541							
		0.12				-.1582				-.1541
		0.23				-.1582				-.1541
$\alpha = -2^o$; $q_\infty = 552$; $p_j/p_\infty = 6.1$										
Nozzle 2	0.09		-.1187	-.1589	-.1435	-.1319	-.1435	-.1420	-.1100	-.0867
	0.30		-.1328	-.1589	-.1406	-.1333	-.1420	-.1420	-.1129	-.0926
	0.51		-.1467	-.1547	-.1391	-.1333	-.1391	-.1391	-.1304	-.1227
	0.73		-.1487		-.1362		-.1362		-.1362	
	0.94		-.1362							
Nozzle 3	0.09		-.1308	-.0847	-.1129		-.1449		-.1464	-.1589
	0.30		-.1447	-.0946	-.1216		-.1420		-.1449	-.1589
	0.51		-.1527		-.1348		-.1391		-.1406	
	0.73		-.1507				-.1391			
	0.94		-.1377				-.1362			
Nozzle 6	0.09		-.1471				-.1471		-.1513	
	0.30		-.1471				-.1471		-.1513	
	0.51		-.1471				-.1493		-.1513	
	0.73									
Star		0.00	-.0295							
		0.12				-.0988				-.0988
		0.23				-.1366				-.1344

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3^{0} inward and engines 1 and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	225^{0}	270^{0}	315^{0}
$\alpha = -4^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0971	-.1711	-.1801	-.1787	-.1772	-.1756	-.1351	-.0872
	0.30		-.1152	-.1792	-.1902	-.1873	-.1888	-.1859	-.1438	-.0951
	0.51		-.1532	-.1951	-.1902	-.1888	-.1917	-.1917	-.1669	-.1271
	0.73		-.1872		-.1888		-.1917		-.1830	
	0.94		-.1888							
Nozzle 3	0.09		-.1071	-.0671	-.1278		-.1816		-.1816	-.1691
	0.30		-.1271	-.0872	-.1409		-.1902		-.1902	-.1812
	0.51		-.1651		-.1640		-.1931		-.1917	
	0.73		-.1911				-.1931			
	0.94		-.1888				-.1917			
Nozzle 6	0.09		-.1857				-.1837		-.1920	
	0.30		-.1899				-.1899		-.1920	
	0.51		-.1920				-.1940		-.1940	
	0.73									
Star		0.00	-.1711							
		0.12				-.1711				-.1691
		0.23				-.1752				-.1691
$\alpha = -4^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.0$										
Nozzle 2	0.09		-.1250	-.1610	-.1437	-.1335	-.1451	-.1437	-.1248	-.1210
	0.30		-.1411	-.1610	-.1422	-.1335	-.1451	-.1451	-.1277	-.1230
	0.51		-.1491	-.1590	-.1393	-.1335	-.1408	-.1408	-.1350	-.1411
	0.73		-.1511		-.1393		-.1393		-.1364	
	0.94		-.1393							
Nozzle 3	0.09		-.1332	-.1131	-.1234		-.1451		-.1465	-.1610
	0.30		-.1471	-.1230	-.1263		-.1451		-.1465	-.1610
	0.51		-.1570		-.1364		-.1408		-.1422	
	0.73		-.1531				-.1393			
	0.94		-.1393				-.1379			
Nozzle 6	0.09		-.1489				-.1489		-.1531	
	0.30		-.1509				-.1489		-.1552	
	0.51		-.1509				-.1509		-.1552	
	0.73									
Star		0.00	-.0309							
		0.12				-.1046				-.0984
		0.23				-.1404				-.1362

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(b) $M_{\infty} = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0215	-.1693	-.2187	-.2129	-.2144	-.2026	-.2129	-.0973
	0.30		-.0595	-.1713	-.2303	-.2231	-.2216	-.2026	-.2158	-.1055
	0.51		-.1254	-.1892	-.2289	-.2260	-.2245	-.2144	-.2173	-.1314
	0.73		-.1912		-.2274		-.2245		-.2245	
	0.94		-.2274							
Nozzle 3	0.09		-.0295	-.0735	-.2055		-.2158		-.2202	-.1753
	0.30		-.0774	-.0894	-.2158		-.2231		-.2303	-.1793
	0.51		-.1433		-.2216		-.2245		-.2289	
	0.73		-.1974				-.2260			
	0.94		-.2274				-.2260			
Nozzle 6	0.09		-.2053				-.2053		-.2265	
	0.30		-.2222				-.2202		-.2285	
	0.51		-.2285				-.2265		-.2307	
	0.73									
Star		0.00	-.1885							
		0.12				-.1885				-.1864
		0.23				-.1949				-.1864
$\alpha = -8^{\circ}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.0$										
Nozzle 2	0.09		-.1167	-.1608	-.1552	-.1437	-.1523	-.1509	-.1437	-.1388
	0.30		-.1388	-.1688	-.1538	-.1437	-.1509	-.1509	-.1494	-.1408
	0.51		-.1608	-.1688	-.1509	-.1451	-.1494	-.1509	-.1494	-.1567
	0.73		-.1628		-.1494		-.1494		-.1494	
	0.94		-.1480							
Nozzle 3	0.09		-.1286	-.1286	-.1465		-.1538		-.1581	-.1608
	0.30		-.1487	-.1388	-.1494		-.1538		-.1581	-.1708
	0.51		-.1648		-.1494		-.1523		-.1552	
	0.73		-.1648				-.1494			
	0.94		-.1480				-.1465			
Nozzle 6	0.09		-.1594				-.1636		-.1636	
	0.30		-.1614				-.1614		-.1657	
	0.51		-.1636				-.1636		-.1657	
	0.73									
Star		0.00	-.0373							
		0.12				-.1131				-.1109
		0.23				-.1531				-.1489

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0404	-.1215	-.1467	-.1392	-.1486	-.1245	-.0526	-.0303
	0.30		-.0581	-.1215	-.1504	-.1486	-.1541	-.1208	-.0673	-.0303
	0.51		-.0884	-.1265	-.1541	-.1504	-.1541	-.1208	-.0914	-.0455
	0.73		-.1316		-.1504		-.1486		-.1300	
	0.94		-.1541							
Nozzle 3	0.09		-.0530	-.0253	-.0489		-.1467		-.1467	-.1215
	0.30		-.0733	-.0328	-.0730		-.1504		-.1504	-.1215
	0.51		-.1063		-.1043		-.1504		-.1486	
	0.73		-.1392				-.1504			
	0.94		-.1486				-.1504			
Nozzle 6	0.09		-.1385				-.1412		-.1518	
	0.30		-.1518				-.1518		-.1598	
	0.51		-.1598				-.1651		-.1679	
	0.73									
Star		0.00	-.1171							
		0.12				-.1171				-.1171
		0.23				-.1171				-.1199
$\alpha = 0^\circ$; $q_\infty = 435$; $p_j/p_\infty = 11.0$										
Nozzle 2	0.09		-.0646	-.0847	-.0934	-.0769	-.0898	-.0934	-.0733	-.0520
	0.30		-.0797	-.0898	-.0916	-.0788	-.0916	-.0953	-.0898	-.0595
	0.51		-.0797	-.0873	-.0916	-.0788	-.0898	-.0934	-.0916	-.0721
	0.73		-.0797		-.0898		-.0898		-.0898	
	0.94		-.0879							
Nozzle 3	0.09		-.0747	-.0520	-.0788		-.0916		-.0934	-.0847
	0.30		-.0822	-.0646	-.0898		-.0916		-.0934	-.0847
	0.51		-.0847		-.0916		-.0898		-.0934	
	0.73		-.0822				-.0898			
	0.94		-.0898				-.0861			
Nozzle 6	0.09		-.0859				-.0831		-.0911	
	0.30		-.0911				-.0884		-.0939	
	0.51		-.0911				-.0911		-.0939	
	0.73									
Star		0.00	.1402							
		0.12				.0126				.0179
		0.23				-.0485				-.0405

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0436	-.1219	-.1467	-.1430	-.1485	-.1339	-.0841	-.0335
	0.30		-.0562	-.1219	-.1504	-.1522	-.1504	-.1320	-.0933	-.0360
	0.51		-.0864	-.1295	-.1559	-.1504	-.1504	-.1449	-.1116	-.0562
	0.73		-.1295		-.1559		-.1559		-.1412	
	0.94		-.1559							
Nozzle 3	0.09		-.0536	-.0284	-.0823		-.1485		-.1485	-.1219
	0.30		-.0738	-.0385	-.0970		-.1522		-.1559	-.1245
	0.51		-.1043		-.1210		-.1504		-.1559	
	0.73		-.1396				-.1559			
	0.94		-.1559				-.1504			
Nozzle 6	0.09		-.1364				-.1364		-.1524	
	0.30		-.1550				-.1550		-.1602	
	0.51		-.1630				-.1630		-.1682	
	0.73									
Star		0.00	-.1258							
		0.12				-.1258				-.1258
		0.23				-.1311				-.1258
$\alpha = -2°$; $q_\infty = 435$; $p_j/p_\infty = 11.0$										
Nozzle 2	0.09		-.0759	-.0988	-.0931	-.0782	-.0892	-.0931	-.0782	-.0683
	0.30		-.0910	-.1013	-.0931	-.0782	-.0931	-.0931	-.0910	-.0809
	0.51		-.0910	-.0988	-.0931	-.0800	-.0910	-.0949	-.0931	-.0885
	0.73		-.0910		-.0910		-.0910		-.0910	
	0.94		-.0910							
Nozzle 3	0.09		-.0860	-.0708	-.0837		-.0910		-.0949	-.0963
	0.30		-.0963	-.0834	-.0910		-.0910		-.0949	-.0988
	0.51		-.0963		-.0910		-.0910		-.0949	
	0.73		-.0963				-.0910			
	0.94		-.0892				-.0873			
Nozzle 6	0.09		-.0811				-.0811		-.0864	
	0.30		-.0864				-.0864		-.0892	
	0.51		-.0892				-.0864		-.0892	
	0.73									
Star		0.00	.1414							
		0.12				.0170				.0170
		0.23				-.0468				-.0440

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3^{o} inward and engines 1 and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0408	-.1218	-.1484	-.1484	-.1503	-.1390	-.1042	-.0560
	0.30		-.0585	-.1244	-.1576	-.1576	-.1521	-.1466	-.1188	-.0585
	0.51		-.0837	-.1344	-.1668	-.1631	-.1613	-.1539	-.1372	-.0636
	0.73		-.1244		-.1631		-.1631		-.1539	
	0.94		-.1595							
Nozzle 3	0.09		-.0535	-.0459	-.1060		-.1503		-.1503	-.1244
	0.30		-.0736	-.0459	-.1244		-.1521		-.1631	-.1294
	0.51		-.1016		-.1427		-.1576		-.1650	
	0.73		-.1319				-.1631			
	0.94		-.1613				-.1613			
Nozzle 6	0.09		-.1361				-.1388		-.1574	
	0.30		-.1574				-.1574		-.1627	
	0.51		-.1682				-.1707		-.1707	
	0.73									
Star		0.00	-.1388							
		0.12				-.1416				-.1388
		0.23				-.1416				-.1388
$\alpha = -4^{o}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 11.0$										
Nozzle 2	0.09		-.0784	-.0988	-.0983	-.0855	-.0910	-.0983	-.0873	-.0734
	0.30		-.0910	-.0988	-.0983	-.0834	-.0947	-.0983	-.0965	-.0834
	0.51		-.0935	-.0988	-.0983	-.0873	-.0947	-.0983	-.0965	-.0910
	0.73		-.0935		-.0965		-.0947		-.0965	
	0.94		-.0947							
Nozzle 3	0.09		-.0885	-.0759	-.0928		-.0947		-.0983	-.0935
	0.30		-.0935	-.0860	-.0965		-.0947		-.1002	-.0988
	0.51		-.0963		-.0983		-.0947		-.1002	
	0.73		-.0963				-.0947			
	0.94		-.0947				-.0928			
Nozzle 6	0.09		-.0834				-.0834		-.0889	
	0.30		-.0889				-.0889		-.0915	
	0.51		-.0889				-.0889		-.0915	
	0.73									
Star		0.00	.1419							
		0.12				.0119				.0172
		0.23				-.0491				-.0438

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		.0021	-.1042	-.1576	-.1576	-.1576	-.1521	-.1521	-.0535
	0.30		-.0257	-.1117	-.1705	-.1705	-.1668	-.1521	-.1539	-.0535
	0.51		-.0610	-.1370	-.1778	-.1723	-.1723	-.1576	-.1595	-.0661
	0.73		-.1143		-.1760		-.1705		-.1686	
	0.94		-.1686							
Nozzle 3	0.09		-.0106	-.0383	-.1503		-.1595		-.1613	-.1117
	0.30		-.0383	-.0434	-.1576		-.1686		-.1760	-.1244
	0.51		-.0787		-.1668		-.1705		-.1760	
	0.73		-.1244				-.1741			
	0.94		-.1705				-.1723			
Nozzle 6	0.09		-.1441				-.1494		-.1707	
	0.30		-.1707				-.1682		-.1787	
	0.51		-.1787				-.1815		-.1815	
	0.73									
Star		0.00	-.1549							
		0.12				-.1574				-.1549
		0.23				-.1601				-.1549
$\alpha = -8^{\circ}$; $q_\infty = 435$; $p_j/p_\infty = 11.0$										
Nozzle 2	0.09		-.0706	-.0983	-.1093	-.0965	-.0983	-.1038	-.1020	-.0883
	0.30		-.0933	-.1112	-.1093	-.0983	-.0983	-.1093	-.1057	-.0933
	0.51		-.1036	-.1112	-.1093	-.0965	-.1002	-.1093	-.1093	-.1011
	0.73		-.1036		-.1075		-.1002		-.1057	
	0.94		-.1020							
Nozzle 3	0.09		-.0857	-.0857	-.1020		-.1020		-.1112	-.1036
	0.30		-.0983	-.0933	-.1093		-.1020		-.1112	-.1112
	0.51		-.1087		-.1112		-.1057		-.1112	
	0.73		-.1087				-.1038			
	0.94		-.1020				-.1020			
Nozzle 6	0.09		-.0942				-.0942		-.0995	
	0.30		-.0995				-.0995		-.1048	
	0.51		-.1020				-.1020		-.1048	
	0.73									
Star		0.00	.1368							
		0.12				.0094				.0066
		0.23				-.0571				-.0516

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0319	-.0790	-.1102	-.0971	-.1102	-.0836	-.0362	-.0247
	0.30		-.0428	-.0898	-.1129	-.1102	-.1129	-.0915	-.0494	-.0355
	0.51		-.0681	-.1083	-.1155	-.1155	-.1181	-.0997	-.0678	-.0609
	0.73		-.0971		-.1181		-.1181		-.0941	
	0.94		-.1155							
Nozzle 3	0.09		-.0609	-.0283	-.0309		-.1129		-.1102	-.0862
	0.30		-.0681	-.0428	-.0520		-.1155		-.1155	-.0935
	0.51		-.0862		-.0731		-.1155		-.1181	
	0.73		-.1083				-.1181			
	0.94		-.1155				-.1181			
Nozzle 6	0.09		-.1010				-.1089		-.1201	
	0.30		-.1165				-.1165		-.1241	
	0.51		-.1241				-.1241		-.1241	
	0.73									
Star		0.00	-.0974							
		0.12				-.0974				-.0935
		0.23				-.1010				-.0935
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 22.6$										
Nozzle 2	0.09		-.0187	-.0259	-.0335	-.0177	-.0309	-.0361	-.0309	-.0187
	0.30		-.0223	-.0296	-.0361	-.0282	-.0335	-.0361	-.0361	-.0259
	0.51		-.0296	-.0296	-.0335	-.0282	-.0309	-.0361	-.0335	-.0296
	0.73		-.0296		-.0361		-.0335		-.0361	
	0.94		-.0335							
Nozzle 3	0.09		-.0259	-.0223	-.0335		-.0335		-.0361	-.0259
	0.30		-.0259	-.0223	-.0361		-.0361		-.0361	-.0259
	0.51		-.0259		-.0361		-.0361		-.0361	
	0.73		-.0259				-.0361			
	0.94		-.0361				-.0335			
Nozzle 6	0.09		-.0371				-.0335		-.0335	
	0.30		-.0335				-.0335		-.0335	
	0.51		-.0335				-.0296		-.0296	
	0.73									
Star		0.00	.3978							
		0.12				.2050				.2086
		0.23				.1028				.1104

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^{\circ}$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.0286	-.0864	-.1258	-.1205	-.1284	-.1179	-.0729	-.0250
	0.30		-.0322	-.0972	-.1284	-.1284	-.1284	-.1205	-.0887	-.0250
	0.51		-.0611	-.1084	-.1337	-.1311	-.1311	-.1232	-.1071	-.0503
	0.73		-.1008		-.1311		-.1337		-.1232	
	0.94		-.1311							
Nozzle 3	0.09		-.0466	-.0214	-.0755		-.1232		-.1284	-.0936
	0.30		-.0575	-.0358	-.0913		-.1258		-.1284	-.0972
	0.51		-.0792		-.1100		-.1311		-.1311	
	0.73		-.1084				-.1337			
	0.94		-.1311				-.1311			
Nozzle 6	0.09		-.1051				-.1051		-.1242	
	0.30		-.1242				-.1163		-.1278	
	0.51		-.1242				-.1278		-.1278	
	0.73									
Star		0.00	-.1087							
		0.12				-.1087				-.1051
		0.23				-.1127				-.1051
$\alpha = -2^{\circ}$; $q_\infty = 304$; $p_j/p_\infty = 22.7$										
Nozzle 2	0.09		-.0316	-.0392	-.0382	-.0224	-.0382	-.0382	-.0382	-.0316
	0.30		-.0392	-.0428	-.0382	-.0329	-.0382	-.0382	-.0408	-.0392
	0.51		-.0428	-.0464	-.0408	-.0329	-.0382	-.0382	-.0408	-.0428
	0.73		-.0428		-.0408		-.0382		-.0382	
	0.94		-.0408							
Nozzle 3	0.09		-.0428	-.0352	-.0408		-.0382		-.0408	-.0428
	0.30		-.0428	-.0392	-.0408		-.0408		-.0408	-.0428
	0.51		-.0428		-.0408		-.0382		-.0408	
	0.73		-.0428				-.0408			
	0.94		-.0408				-.0382			
Nozzle 6	0.09		-.0553				-.0474		-.0474	
	0.30		-.0474				-.0474		-.0474	
	0.51		-.0474				-.0438		-.0474	
	0.73									
Star		0.00	.3873							
		0.12				.1889				.1889
		0.23				.0859				.0935

TABLE XIII. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.0319	-.0826	-.1152	-.1126	-.1152	-.1047	-.0678	-.0428
	0.30		-.0464	-.0935	-.1178	-.1178	-.1178	-.1047	-.0889	-.0319
	0.51		-.0536	-.1047	-.1205	-.1205	-.1205	-.1152	-.1099	-.0319
	0.73		-.0790		-.1205		-.1205		-.1178	
	0.94		-.1178							
Nozzle 3	0.09		-.0536	-.0283	-.0731		-.1126		-.1178	-.0935
	0.30		-.0536	-.0247	-.0968		-.1178		-.1205	-.0971
	0.51		-.0645		-.1126		-.1178		-.1234	
	0.73		-.0935				-.1178			
	0.94		-.1178				-.1178			
Nozzle 6	0.09		-.1086				-.1086		-.1241	
	0.30		-.1241				-.1241		-.1277	
	0.51		-.1277				-.1277		-.1277	
	0.73									
Star		0.00	-.1086							
		0.12				-.1126				-.1126
		0.23				-.1162				-.1086
$\alpha = -4^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 22.6$										
Nozzle 2	0.09		-.0388	-.0461	-.0332	-.0201	-.0332	-.0332	-.0332	-.0388
	0.30		-.0425	-.0461	-.0332	-.0280	-.0332	-.0332	-.0359	-.0461
	0.51		-.0461	-.0497	-.0359	-.0306	-.0332	-.0332	-.0359	-.0461
	0.73		-.0461		-.0332		-.0332		-.0332	
	0.94		-.0332							
Nozzle 3	0.09		-.0461	-.0388	-.0359		-.0359		-.0332	-.0461
	0.30		-.0461	-.0461	-.0359		-.0359		-.0359	-.0461
	0.51		-.0461		-.0359		-.0359		-.0359	
	0.73		-.0461				-.0359			
	0.94		-.0359				-.0332			
Nozzle 6	0.09		-.0589				-.0513		-.0474	
	0.30		-.0474				-.0474		-.0474	
	0.51		-.0474				-.0474		-.0474	
	0.73									
Star		0.00	.3834							
		0.12				.1889				.1889
		0.23				.0859				.0935

TABLE XIII. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Shroud cut to fire wall with engines 2 and 3 gimbaled 3° inward and engines 1 and 4 gimbaled 6° outward]

(d) M_∞ = 2.87 - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
α = -8°; q_∞ = 304; p_j/p_∞ = 0.0										
Nozzle 2	0.09		.0036	-.0542	-.1205	-.1232	-.1179	-.1179	-.1048	-.0470
	0.30		-.0217	-.0650	-.1284	-.1258	-.1205	-.1153	-.1153	-.0397
	0.51		-.0289	-.1012	-.1311	-.1284	-.1258	-.1179	-.1205	-.0470
	0.73		-.0614		-.1284		-.1284		-.1258	
	0.94		-.1179							
Nozzle 3	0.09		-.0181	-.0217	-.1022		-.1179		-.1258	-.0650
	0.30		-.0217	-.0253	-.1074		-.1205		-.1337	-.0795
	0.51		-.0397		-.1205		-.1258		-.1311	
	0.73		-.0687				-.1284			
	0.94		-.1205				-.1258			
Nozzle 6	0.09		-.1048				-.1127		-.1238	
	0.30		-.1238				-.1238		-.1238	
	0.51		-.1238				-.1238		-.1278	
	0.73									
Star		0.00	-.1202							
		0.12				-.1202				-.1202
		0.23				-.1238				-.1163
α = -8°; q_∞ = 304; p_j/p_∞ = 22.6										
Nozzle 2	0.09		-.0319	-.0500	-.0359	-.0280	-.0359	-.0359	-.0411	-.0464
	0.30		-.0500	-.0573	-.0411	-.0359	-.0359	-.0359	-.0411	-.0536
	0.51		-.0573	-.0573	-.0411	-.0359	-.0359	-.0359	-.0332	-.0573
	0.73		-.0573		-.0411		-.0359		-.0359	
	0.94		-.0332							
Nozzle 3	0.09		-.0500	-.0464	-.0411		-.0411		-.0332	-.0573
	0.30		-.0573	-.0573	-.0438		-.0411		-.0438	-.0573
	0.51		-.0573		-.0411		-.0411		-.0438	
	0.73		-.0573				-.0411			
	0.94		-.0359				-.0359			
Nozzle 6	0.09		-.0661				-.0661		-.0625	
	0.30		-.0625				-.0625		-.0625	
	0.51		-.0625				-.0625		-.0625	
	0.73									
Star		0.00	.3814							
		0.12				.1823				.1823
		0.23				.0829				.0829

TABLE XIV

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2947	-.3000	-.2911	-.2897	-.2911	-.2924	-.2924	-.3000
	0.30		-.3000	-.3000	-.2924	-.2872	-.2911	-.2911	-.2897	-.3000
	0.51		-.3000	-.2981	-.2936	-.2872	-.2924	-.2911	-.2897	-.3000
	0.73		-.3000		-.2911		-.2897		-.2897	
Nozzle 3	0.09		-.3017	-.3034	-.2961		-.2961		-.2936	-.3034
	0.30		-.3034	-.3017	-.2961		-.2961		-.2961	-.3017
	0.51		-.3017		-.2961		-.2961		-.2961	
	0.73		-.3017				-.2948			
Nozzle 6	0.09		-.3121				-.3103		-.2976	
	0.30		-.3049				-.3049		-.3049	
	0.51		-.3031				-.3049		-.3049	
	0.73									
Shroud	0.13									.0893
	0.41									.1599
	0.62								-.3229	.2305
	0.81								-.3501	
	1.00								-.2976	.2848
Heat Shield		0.68								-.3012
		0.79								-.3012
		0.91								-.3031
		1.13	-.3031							
		1.25	-.3031							
		1.38	-.3121							
Star		0.00	-.2289							
		0.12				-.2308				-.2254
		0.23				-.2344				-.2254

TABLE XIV.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2965	-.3000	-.2949	-.2937	-.2949	-.2949	-.2925	-.3000
	0.30		-.3000	-.3017	-.2949	-.2912	-.2949	-.2937	-.2925	-.3000
	0.51		-.3000	-.3000	-.2974	-.2900	-.2949	-.2937	-.2925	-.3000
	0.73		-.3000		-.2949		-.2937		-.2925	
Nozzle 3	0.09		-.3051	-.3051	-.2986		-.3000		-.2974	-.3051
	0.30		-.3034	-.3034	-.2986		-.3000		-.3000	-.3034
	0.51		-.3051		-.2986		-.2986		-.2974	
	0.73		-.3034				-.2974			
Nozzle 6	0.09		-.3093				-.3074		-.2932	
	0.30		-.3022				-.3022		-.3022	
	0.51		-.3022				-.3022		-.3022	
	0.73									
Shroud	0.13									.0898
	0.41									.1542
	0.62								-.3183	.2061
	0.81								-.3343	
	1.00								-.2932	.2651
Heat Shield		0.68								-.2968
		0.79								-.2968
		0.91								-.2985
		1.13	-.3022							
		1.25	-.3022							
		1.38	-.3003							
Star		0.00	-.2413							
		0.12				-.2430				-.2395
		0.23				-.2467				-.2378

TABLE XIV.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4^{\circ}$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.2963	-.2997	-.2927	-.2915	-.2927	-.2927	-.2915	-.2997
	0.30		-.2997	-.2997	-.2940	-.2890	-.2940	-.2927	-.2915	-.2997
	0.51		-.2997	-.2980	-.2964	-.2890	-.2940	-.2927	-.2915	-.2980
	0.73		-.2980		-.2927		-.2915		-.2902	
Nozzle 3	0.09		-.2997	-.3033	-.2964		-.2989		-.2964	-.3033
	0.30		-.3033	-.3016	-.2964		-.2977		-.2964	-.3016
	0.51		-.3033		-.2964		-.2977		-.2964	
	0.73		-.3033				-.2964			
Nozzle 6	0.09		-.3082				-.3046		-.2940	
	0.30		-.2992				-.3011		-.3029	
	0.51		-.3011				-.3029		-.3029	
	0.73									
Shroud	0.13									.0853
	0.41									.1428
	0.62								-.3119	.1894
	0.81								-.3245	
	1.00								-.2940	.2201
Heat Shield		0.68								-.2975
		0.79								-.2975
		0.91								-.2992
		1.13	-.3011							
		1.25	-.3011							
		1.38	-.2975							
Star		0.00	-.2616							
		0.12				-.2616				-.2597
		0.23				-.2669				-.2562

TABLE XIV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.3080	-.3116	-.3051	-.3039	-.3077	-.3063	-.3051	-.3116
	0.30		-.3116	-.3116	-.3063	-.3001	-.3077	-.3063	-.3051	-.3099
	0.51		-.3099	-.3099	-.3063	-.3039	-.3077	-.3063	-.3051	-.3080
	0.73		-.3080		-.3051		-.3063		-.3051	
Nozzle 3	0.09		-.3133	-.3133	-.3077		-.3114		-.3063	-.3150
	0.30		-.3133	-.3133	-.3077		-.3102		-.3077	-.3133
	0.51		-.3133		-.3077		-.3090		-.3077	
	0.73		-.3133				-.3077			
Nozzle 6	0.09		-.3111				-.3166		-.3005	
	0.30		-.3130				-.3166		-.3166	
	0.51		-.3130				-.3166		-.3166	
	0.73									
Shroud	0.13									.0887
	0.41									.1356
	0.62								-.3203	.1788
	0.81								-.3203	
	1.00								-.2986	.2040
Heat Shield		0.68								-.3111
		0.79								-.3111
		0.91								-.3130
		1.13	-.3130							
		1.25	-.3130							
		1.38	-.3005							
Star		0.00	-.2896							
		0.12				-.2896				-.2878
		0.23				-.2913				-.2861

TABLE XIV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0^{\circ}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3170	-.3204	-.3291	-.3040	-.3266	-.3178	-.3116	-.3170
	0.30		-.3204	-.3204	-.3229	-.3077	-.3166	-.3128	-.3128	-.3187
	0.51		-.3187	-.3187	-.3178	-.3103	-.3103	-.3128	-.3128	-.3170
	0.73		-.3187		-.3178		-.3141		-.3128	
Nozzle 3	0.09		-.3411	-.3411	-.3429		-.3429		-.3153	-.3221
	0.30		-.3411	-.3394	-.3456		-.3429		-.3217	-.3480
	0.51		-.3446		-.3456		-.3392		-.3279	
	0.73		-.3446				-.3342			
Nozzle 6	0.09		-.3119				-.3119		-.2958	
	0.30		-.3155				-.3155		-.3173	
	0.51		-.3209				-.3209		-.3190	
	0.73									
Shroud	0.13									.0904
	0.41									.1660
	0.62								-.3299	.2342
	0.81								-.3479	
	1.00								-.2922	.2899
Heat Shield		0.68								-.3209
		0.79								-.3228
		0.91								-.3228
		1.13	-.3245							
		1.25	-.3245							
		1.38	-.3048							
Star		0.00	-.2365							
		0.12				-.2886				-.2581
		0.23				-.2939				-.2868

TABLE XIV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3234	-.3268	-.3268	-.3054	-.3268	-.3167	-.3142	-.3251
	0.30		-.3251	-.3268	-.3218	-.3130	-.3154	-.3142	-.3142	-.3251
	0.51		-.3268	-.3251	-.3218	-.3130	-.3130	-.3142	-.3142	-.3251
	0.73		-.3268		-.3218		-.3154		-.3142	
Nozzle 3	0.09		-.3423	-.3423	-.3418		-.3418		-.3230	-.3371
	0.30		-.3423	-.3423	-.3418		-.3418		-.3255	-.3492
	0.51		-.3457		-.3418		-.3381		-.3268	
	0.73		-.3457				-.3356			
Nozzle 6	0.09		-.3224				-.3187		-.2951	
	0.30		-.3260				-.3187		-.3206	
	0.51		-.3296				-.3241		-.3260	
	0.73									
Shroud	0.13									.0947
	0.41									.1581
	0.62								-.3350	.2179
	0.81								-.3404	
	1.00								-.2970	.2724
Heat Shield		0.68								-.3296
		0.79								-.3278
		0.91								-.3278
		1.13	-.3314							
		1.25	-.3314							
		1.38	-.3133							
Star		0.00	-.2426							
		0.12				-.2933				-.2643
		0.23				-.3006				-.2951

TABLE XIV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3^{o} inward]

(a) $M_{\infty} = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	225^{o}	270^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 645$; $p_j/p_{\infty} = 3.4$										
Nozzle 2	0.09		-.3234	-.3251	-.3237	-.3099	-.3199	-.3148	-.3148	-.3251
	0.30		-.3268	-.3268	-.3237	-.3123	-.3148	-.3148	-.3161	-.3251
	0.51		-.3268	-.3268	-.3249	-.3161	-.3161	-.3161	-.3161	-.3251
	0.73		-.3285		-.3261		-.3148		-.3175	
Nozzle 3	0.09		-.3389	-.3389	-.3376		-.3401		-.3288	-.3389
	0.30		-.3389	-.3389	-.3376		-.3389		-.3288	-.3423
	0.51		-.3423		-.3389		-.3362		-.3288	
	0.73		-.3423				-.3362			
Nozzle 6	0.09		-.3241				-.3151		-.2987	
	0.30		-.3241				-.3168		-.3224	
	0.51		-.3278				-.3187		-.3224	
	0.73									
Shroud	0.13									.0856
	0.41									.1454
	0.62								-.3278	.1907
	0.81								-.3296	
	1.00								-.2970	.2252
Heat Shield		0.68								-.3278
		0.79								-.3278
		0.91								-.3278
		1.13	-.3278							
		1.25	-.3278							
		1.38	-.3114							
Star		0.00	-.2407							
		0.12				-.2933				-.2662
		0.23				-.2987				-.2916

TABLE XIV. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 3° inward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 2	0.09		-.3266	-.3317	-.3236	-.3173	-.3212	-.3198	-.3185	-.3283
	0.30		-.3317	-.3317	-.3300	-.3198	-.3212	-.3212	-.3212	-.3300
	0.51		-.3336	-.3317	-.3300	-.3236	-.3224	-.3236	-.3212	-.3317
	0.73		-.3336		-.3312		-.3198		-.3212	
Nozzle 3	0.09		-.3439	-.3456	-.3463		-.3425		-.3325	-.3370
	0.30		-.3456	-.3421	-.3438		-.3413		-.3337	-.3490
	0.51		-.3490		-.3438		-.3425		-.3337	
	0.73		-.3490				-.3425			
Nozzle 6	0.09		-.3274				-.3129		-.2679	
	0.30		-.3274				-.3146		-.3363	
	0.51		-.3326				-.3182		-.3326	
	0.73									
Shroud	0.13									.0855
	0.41									.1342
	0.62								-.3255	.1757
	0.81								-.3236	
	1.00								-.3002	.2009
Heat Shield		0.68								-.3291
		0.79								-.3291
		0.91								-.3309
		1.13	-.3309							
		1.25	-.3326							
		1.38	-.3111							
Star		0.00	-.2389							
		0.12				-.2877				-.2679
		0.23				-.2984				-.2948

TABLE XV

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_\infty = 2.87$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1353	-.1429	-.1347	-.1291	-.1347	-.1347	-.1347	-.1238
	0.30		-.1393	-.1429	-.1347	-.1320	-.1347	-.1347	-.1347	-.1429
	0.51		-.1429	-.1429	-.1347	-.1347	-.1320	-.1347	-.1347	-.1429
	0.73		-.1429		-.1320		-.1347		-.1347	
Nozzle 3	0.09		-.1429	-.1163	-.1347		-.1320		-.1403	-.1238
	0.30		-.1429	-.1429	-.1320		-.1320		-.1320	-.1429
	0.51		-.1429		-.1347		-.1347		-.1320	
	0.73		-.1429				-.1320			
Nozzle 6	0.09		-.1061				-.1380		-.1340	
	0.30		-.1380				-.1340		-.1380	
	0.51		-.1380				-.1380		-.1380	
	0.73									
Shroud	0.13									.1192
	0.41									.1271
	0.62								-.0864	.1311
	0.81								-.0864	
	1.00								-.0785	.0798
Heat Shield		0.68								-.1022
		0.79								-.1061
		0.91								-.1100
		1.13	-.0982							
		1.25	-.0864							
		1.38	-.1022							
Star		0.00	-.0982							
		0.12				-.0982				-.0982
		0.23								-.0982

TABLE XV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1205	-.1357	-.1429	-.1403	-.1429	-.1429	-.1403	-.1245
	0.30		-.1320	-.1357	-.1429	-.1403	-.1429	-.1429	-.1429	-.1357
	0.51		-.1357	-.1357	-.1429	-.1429	-.1429	-.1429	-.1429	-.1357
	0.73		-.1357		-.1429		-.1429		-.1429	
Nozzle 3	0.09		-.1357	-.1169	-.1403		-.1403		-.1403	-.1169
	0.30		-.1281	-.1281	-.1403		-.1429		-.1403	-.1357
	0.51		-.1357		-.1485		-.1429		-.1485	
	0.73		-.1357				-.1403			
Nozzle 6	0.09		-.1222				-.1340		-.1340	
	0.30		-.1340				-.1340		-.1340	
	0.51		-.1380				-.1340		-.1380	
	0.73									
Shroud	0.13									.1186
	0.41									.1304
	0.62								-.1064	.1422
	0.81								-.1025	
	1.00								-.0946	.0946
Heat Shield		0.68								-.1340
		0.79								-.1340
		0.91								-.1340
		1.13	-.1340							
		1.25	-.1340							
		1.38	-.1340							
Star		0.00	-.1143							
		0.12				-.1143				-.1143
		0.23								-.1104

TABLE XV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 2	0.09		-.1317	-.1429	-.1403	-.1403	-.1403	-.1373	-.1403	-.1242
	0.30		-.1353	-.1353	-.1403	-.1403	-.1403	-.1403	-.1403	-.1353
	0.51		-.1393	-.1393	-.1373	-.1403	-.1373	-.1403	-.1403	-.1393
	0.73		-.1393		-.1373		-.1403		-.1373	
Nozzle 3	0.09		-.1429	-.1242	-.1373		-.1458		-.1373	-.1278
	0.30		-.1429	-.1429	-.1458		-.1373		-.1458	-.1429
	0.51		-.1429		-.1373		-.1458		-.1458	
	0.73		-.1429				-.1373			
Nozzle 6	0.09		-.1297				-.1376		-.1376	
	0.30		-.1416				-.1416		-.1416	
	0.51		-.1416				-.1416		-.1455	
	0.73									
Shroud	0.13									.0847
	0.41									.1084
	0.62								-.1140	.1163
	0.81								-.1140	
	1.00								-.1061	.0847
Heat Shield		0.68								-.1376
		0.79								-.1416
		0.91								-.1416
		1.13	-.1495							
		1.25	-.1455							
		1.38	-.1495							
Star		0.00	-.1219							
		0.12				-.1219				-.1179
		0.23								-.1179

TABLE XV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8^{\circ}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 2	0.09		-.1354	-.1505	-.1400	-.1456	-.1374	-.1456	-.1400	-.1315
	0.30		-.1469	-.1505	-.1400	-.1400	-.1400	-.1374	-.1374	-.1505
	0.51		-.1505	-.1505	-.1456	-.1456	-.1374	-.1374	-.1456	-.1505
	0.73		-.1505		-.1456		-.1456		-.1456	
Nozzle 3	0.09		-.1505	-.1239	-.1456		-.1456		-.1456	-.1315
	0.30		-.1505	-.1505	-.1456		-.1456		-.1456	-.1505
	0.51		-.1505		-.1456		-.1456		-.1456	
	0.73		-.1505				-.1456			
Nozzle 6	0.09		-.1295				-.1416		-.1456	
	0.30		-.1456				-.1495		-.1456	
	0.51		-.1456				-.1495		-.1495	
	0.73									
Shroud	0.13									.0774
	0.41									.1052
	0.62								-.1256	.1174
	0.81								-.1295	
	1.00								-.1177	.0856
Heat Shield		0.68								-.1574
		0.79								-.1574
		0.91								-.1574
		1.13	-.1574							
		1.25	-.1574							
		1.38	-.1574							
Star		0.00	-.1416							
		0.12				-.1377				-.1416
		0.23								-.1416

TABLE XV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = 0°$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.0$										
Nozzle 2	0.09		-.0361	-.0437	-.0391	-.0503	-.0532	-.0558	-.0503	-.0437
	0.30		-.0437	-.0437	-.0476	-.0503	-.0503	-.0558	-.0532	-.0437
	0.51		-.0437	-.0437	-.0503	-.0503	-.0503	-.0532	-.0503	-.0437
	0.73		-.0437		-.0503		-.0503		-.0503	
Nozzle 3	0.09		-.0437	-.0437	-.0558		-.0614		-.0420	-.1123
	0.30		-.0437	-.0437	-.0532		-.0558		-.0503	-.0437
	0.51		-.0437		-.0503		-.0558		-.0503	
	0.73		-.0437				-.0532			
Nozzle 6	0.09		-.0302				-.0381		-.0381	
	0.30		-.0381				-.0381		-.0381	
	0.51		-.0342				-.0381		-.0381	
	0.73									
Shroud	0.13									.1248
	0.41									.1366
	0.62								-.0424	.1406
	0.81								-.0542	
	1.00								-.0581	.0890
Heat Shield		0.68								-.0342
		0.79								-.0342
		0.91								-.0342
		1.13	-.0342							
		1.25	-.0342							
		1.38	-.0342							
Star		0.00	-.0424							
		0.12				-.0381				-.0381
		0.23								-.0381

TABLE XV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.1$										
Nozzle 2	0.09		-.0351	-.0506	-.0414	-.0529	-.0529	-.0585	-.0529	-.0506
	0.30		-.0506	-.0506	-.0499	-.0529	-.0529	-.0585	-.0529	-.0506
	0.51		-.0506	-.0506	-.0529	-.0529	-.0529	-.0529	-.0529	-.0506
	0.73		-.0466		-.0529		-.0529		-.0555	
Nozzle 3	0.09		-.0466	-.0506	-.0529		-.0641		-.0443	-.1196
	0.30		-.0506	-.0506	-.0529		-.0585		-.0529	-.0466
	0.51		-.0466		-.0555		-.0555		-.0529	
	0.73		-.0466				-.0529			
Nozzle 6	0.09		-.0493				-.0493		-.0493	
	0.30		-.0532				-.0532		-.0532	
	0.51		-.0493				-.0532		-.0493	
	0.73									
Shroud	0.13									.1074
	0.41									.1232
	0.62								-.0611	.1274
	0.81								-.0772	
	1.00								-.0811	.0913
Heat Shield		0.68								-.0572
		0.79								-.0611
		0.91								-.0572
		1.13	-.0611							
		1.25	-.0611							
		1.38	-.0572							
Star		0.00	-.0611							
		0.12				-.0611				-.0611
		0.23								-.0611

TABLE XV. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -4°$; $q_\infty = 304$; $p_j/p_\infty = 23.1$										
Nozzle 2	0.09		-.0430	-.0470	-.0440	-.0555	-.0555	-.0555	-.0555	-.0470
	0.30		-.0470	-.0470	-.0526	-.0555	-.0555	-.0555	-.0555	-.0470
	0.51		-.0470	-.0470	-.0555	-.0555	-.0555	-.0555	-.0555	-.0430
	0.73		-.0430		-.0555		-.0555		-.0555	
Nozzle 3	0.09		-.0470	-.0470	-.0555		-.0667		-.0470	-.1235
	0.30		-.0470	-.0470	-.0555		-.0555		-.0526	-.0470
	0.51		-.0470		-.0555		-.0555		-.0555	
	0.73		-.0470				-.0526			
Nozzle 6	0.09		-.0493				-.0532		-.0532	
	0.30		-.0532				-.0532		-.0532	
	0.51		-.0532				-.0532		-.0532	
	0.73									
Shroud	0.13									.0913
	0.41									.1074
	0.62								-.0611	.1114
	0.81								-.0650	
	1.00								-.0772	.0874
Heat Shield		0.68								-.0532
		0.79								-.0532
		0.91								-.0493
		1.13	-.0493							
		1.25	-.0532							
		1.38	-.0493							
Star		0.00	-.0572							
		0.12				-.0572				-.0611
		0.23								-.0572

TABLE XV. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES, BASE, AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 7 out and engines 1, 2, 3, and 4 gimbaled 12° outward]

(a) $M_{\infty} = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	225°	270°	315°
$\alpha = -8°$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.1$										
Nozzle 2	0.09		-.0505	-.0505	-.0439	-.0580	-.0610	-.0580	-.0551	-.0505
	0.30		-.0505	-.0505	-.0525	-.0580	-.0610	-.0580	-.0580	-.0541
	0.51		-.0505	-.0541	-.0580	-.0551	-.0551	-.0580	-.0610	-.0505
	0.73		-.0505		-.0551		-.0551		-.0580	
Nozzle 3	0.09		-.0505	-.0505	-.0580		-.0636		-.0495	-.1233
	0.30		-.0620	-.0580	-.0551		-.0580		-.0551	-.0580
	0.51		-.0580		-.0551		-.0551		-.0551	
	0.73		-.0580				-.0551			
Nozzle 6	0.09		-.0489				-.0610		-.0570	
	0.30		-.0610				-.0610		-.0610	
	0.51		-.0610				-.0610		-.0610	
	0.73									
Shroud	0.13									.0957
	0.41									.1157
	0.62								-.0649	.1279
	0.81								-.0689	
	1.00								-.0689	.0997
Heat Shield		0.68								-.0610
		0.79								-.0610
		0.91								-.0570
		1.13	-.0610							
		1.25	-.0610							
		1.38	-.0528							
Star		0.00	-.0610							
		0.12				-.0649				-.0610
		0.23								-.0610

TABLE XVI

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = 0^o$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.3037	-.3037	-.2913		-.2913		-.2890	-.3175
	0.30		-.3090	-.3054	-.2902		-.2913		-.2913	-.3054
	0.51		-.3054		-.2902		-.2913		-.2913	
	0.73		-.3073				-.2913			
	0.94		-.2913							
Nozzle 6	0.09		-.3135				-.3152		-.3009	
	0.30		-.3081				-.3099		-.3081	
	0.51		-.3081				-.3099		-.3081	
Star		0.00	-.2260							
		0.12				-.2260			-.2260	
		0.23							-.2312	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3152	-.1814	.0598	-.1778	-.3152		
				-.3062	-.0692	.1764	-.0813	-.3187		
		-.3248	-.2902	-.2791	.0209	.2303	.0358	-.2717	-.2731	
		-.3618	-.2692	-.2099	.1011	.2831	.1049	-.2185	-.2731	-.3310
		-.3087	-.2717	-.1594	.2000	.3023	.1313	-.1485	-.2782	-.3112
$\alpha = 0^o$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 3	0.09		-.3324	-.3324	-.3242		-.3302		-.3267	-.3527
	0.30		-.3358	-.3324	-.3254		-.3267		-.3254	-.3374
	0.51		-.3341		-.3242		-.3267		-.3267	
	0.73		-.3341				-.3267			
	0.94		-.3242							
Nozzle 6	0.09		-.3188				-.3259		-.3223	
	0.30		-.3295				-.3276		-.3330	
	0.51		-.3330				-.3276		-.3295	
Star		0.00	-.2373							
		0.12				-.2868			-.2780	
		0.23							-.3081	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3400	-.1698	.0640	-.1681	-.3454		
				-.3242	-.0717	.1720	-.0742	-.3188		
		-.3414	-.2921	-.2811	.0194	.2276	.0392	-.2762	-.2729	
		-.3698	-.2712	-.2109	.0993	.2836	.1068	-.2170	-.2712	-.3352
		-.3081	-.2762	-.1604	.1991	.3000	.1427	-.1457	-.2746	-.3143

*Denotes y -coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.3034	-.3034	-.2933		-.2933		-.2921	-.3119
	0.30		-.3051	-.3051	-.2933		-.2933		-.2933	-.3051
	0.51		-.3051		-.2933		-.2933		-.2933	
	0.73		-.3051				-.2933			
	0.94		-.2933							
Nozzle 6	0.09		-.3108				-.3108		-.2966	
	0.30		-.3073				-.3073		-.3054	
	0.51		-.3073				-.3073		-.3054	
Star		0.00	-.2308							
		0.12				-.2344			-.2308	
		0.23							-.2308	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3090	-.1755	.0663	-.1472	-.3108		
				-.3093	-.0607	.1707	-.0618	-.3090		
		-.3217	-.2946	-.3155	.0440	.2127	.0429	-.2700	-.2762	
		-.3512	-.2650	-.2416	.1449	.2517	.1006	-.2169	-.2746	-.3316
		-.3093	-.2774	-.1678	.2471	.2865	.1091	-.1438	-.2712	-.3093
$\alpha = -2°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 3	0.09		-.3294	-.3311	-.3290		-.3375		-.3240	-.3497
	0.30		-.3328	-.3311	-.3277		-.3387		-.3215	-.3311
	0.51		-.3311		-.3265		-.3352		-.3215	
	0.73		-.3311				-.3277			
	0.94		-.3240							
Nozzle 6	0.09		-.3200				-.3252		-.3235	
	0.30		-.3305				-.3271		-.3341	
	0.51		-.3341				-.3288		-.3305	
Star		0.00	-.2418							
		0.12				-.2933			-.2844	
		0.23							-.3146	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3448	-.1742	.0674	-.1440	-.3519		
				-.3437	-.0604	.1699	-.0587	-.3110		
		-.3387	-.2981	-.3191	.0455	.2175	.0465	-.2723	-.2769	
		-.3548	-.2673	-.2439	.1490	.2514	.1035	-.2161	-.2718	-.3362
		-.3104	-.2785	-.1713	.2512	.2907	.1124	-.1414	-.2684	-.3091

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(a) M_∞ = 1.60 - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -4^\circ$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.3006	-.3006	-.2926		-.2926		-.2913	-.3090
	0.30		-.3023	-.3006	-.2926		-.2926		-.2926	-.3006
	0.51		-.3006		-.2926		-.2926		-.2926	
	0.73		-.3006				-.2926			
	0.94		-.2926							
Nozzle 6	0.09		-.3056				-.3039		-.2932	
	0.30		-.3020				-.3020		-.3003	
	0.51		-.3003				-.3003		-.3003	
Star		0.00	-.2559							
		0.12				-.2612			-.2540	
		0.23							-.2540	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3020	-.1758	.0659	-.1225	-.3091		
				-.3025	-.0641	.1584	-.0390	-.3003		
		-.3159	-.3049	-.3172	.0442	.1925	.0586	-.2704	-.2785	
		-.3380	-.2704	-.2803	.1425	.2246	.1129	-.2124	-.2734	-.3306
		-.3172	-.2704	-.1782	.2188	.2335	.1196	-.1378	-.2650	-.3037
$\alpha = -4^\circ$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 3	0.09		-.3296	-.3313	-.3269		-.3379		-.3207	-.3481
	0.30		-.3313	-.3313	-.3257		-.3354		-.3207	-.3313
	0.51		-.3313		-.3244		-.3292		-.3220	
	0.73		-.3313				-.3232			
	0.94		-.3183							
Nozzle 6	0.09		-.3240				-.3240		-.3204	
	0.30		-.3275				-.3240		-.3311	
	0.51		-.3311				-.3257		-.3275	
Star		0.00	-.2424							
		0.12				-.2938			-.2850	
		0.23							-.3152	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3382	-.1768	.0608	-.1237	-.3506		
				-.3305	-.0649	.1576	-.0438	-.3062		
		-.3280	-.3096	-.3501	.0458	.1967	.0598	-.2690	-.2788	
		-.3404	-.2715	-.2802	.1342	.2255	.1133	-.2128	-.2720	-.3330
		-.3170	-.2715	-.1780	.2192	.2351	.1189	-.1350	-.2653	-.3036

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(a) $M_\infty = 1.60$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.3124	-.3107	-.3056		-.3069		-.3031	-.3107
	0.30		-.3124	-.3107	-.3044		-.3056		-.3044	-.3124
	0.51		-.3107		-.3056		-.3056		-.3044	
	0.73		-.3107				-.3056			
	0.94		-.3056							
Nozzle 6	0.09		-.3100				-.3118		-.2852	
	0.30		-.3118				-.3118		-.3118	
	0.51		-.3118				-.3118		-.3135	
Star		0.00	-.2834							
		0.12				-.2869			-.2834	
		0.23							-.2834	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3118	-.2196	.0710	-.0761	-.3259		
				-.3130	-.1086	.1561	-.0070	-.2799		
		-.3180	-.2945	-.3192	-.0076	.1871	.0787	-.2564	-.2769	
		-.3327	-.2847	-.3253	.0749	.2159	.1228	-.1957	-.2700	-.3253
		-.3302	-.2711	-.2257	.1377	.2226	.1211	-.1177	-.2481	-.2897
$\alpha = -8°$; $q_\infty = 645$; $p_j/p_\infty = 3.4$										
Nozzle 3	0.09		-.3339	-.3339	-.3266		-.3401		-.3241	-.3492
	0.30		-.3339	-.3339	-.3266		-.3279		-.3241	-.3339
	0.51		-.3339		-.3254		-.3241		-.3241	
	0.73		-.3339				-.3229			
	0.94		-.3229							
Nozzle 6	0.09		-.3183				-.3254		-.2952	
	0.30		-.3289				-.3272		-.3289	
	0.51		-.3325				-.3289		-.3289	
Star		0.00	-.2472							
		0.12				-.3005			-.2845	
		0.23							-.3166	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.3449	-.2241	.0670	-.0803	-.3342		
				-.3340	-.1074	.1560	-.0093	-.2828		
		-.3229	-.3057	-.3401	-.0053	.1888	.0786	-.2540	-.2796	
		-.3353	-.2847	-.3266	.0772	.2178	.1240	-.1981	-.2729	-.3254
		-.3303	-.2712	-.2232	.1399	.2187	.1210	-.1184	-.2508	-.2896

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6^{o} outward]

(b) $M_{\infty} = 2.00$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = 0^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 3	0.09		-.2192	-.2212	-.2234		-.2234		-.2234	-.2035
	0.30		-.2192	-.2192	-.2219		-.2234		-.2234	-.2212
	0.51		-.2212		-.2219		-.2234		-.2234	
	0.73		-.2212				-.2234			
	0.94		-.2234							
Nozzle 6	0.09		-.2250				-.2292		-.2272	
	0.30		-.2292				-.2292		-.2272	
	0.51		-.2272				-.2272		-.2272	
Star		0.00	-.1653							
		0.12				-.1653			-.1653	
		0.23							-.1653	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2210	-.0847	.1072	-.0869	-.2250		
				-.2134	-.0134	.1792	-.0186	-.2004		
		-.2263	-.1890	-.1788	.0440	.2044	.0547	-.1731	-.1759	
		-.2306	-.1745	-.1300	.1131	.2201	.0916	-.1325	-.1720	-.2149
		-.1890	-.1616	-.0911	.1705	.2138	.0999	-.0813	-.1582	-.1917
$\alpha = 0^{o}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.2$										
Nozzle 3	0.09		-.1995	-.1995	-.2047		-.2076		-.2062	-.2212
	0.30		-.2015	-.2015	-.2047		-.2076		-.2047	-.2015
	0.51		-.2015		-.2047		-.2076		-.2047	
	0.73		-.2015				-.2076			
	0.94		-.2062							
Nozzle 6	0.09		-.1797				-.2044		-.2044	
	0.30		-.2004				-.2044		-.2065	
	0.51		-.2044				-.2044		-.2044	
Star		0.00	-.0331							
		0.12				-.1260			-.1220	
		0.23							-.1673	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2107	-.0827	.1133	-.0807	-.2127		
				-.2076	-.0121	.1778	-.0125	-.1940		
		-.2134	-.1890	-.1759	.0483	.2022	.0545	-.1745	-.1759	
		-.2292	-.1745	-.1300	.1158	.2199	.0929	-.1325	-.1700	-.2149
		-.1890	-.1616	-.0898	.1705	.2150	.0979	-.0815	-.1602	-.1904

*Denotes y -coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(b) M_∞ = 2.00 - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
α = -2°; q_∞ = 552; p_j/p_∞ = 0.0										
Nozzle 3	0.09		-.2264	-.2284	-.2246		-.2246		-.2246	-.2107
	0.30		-.2264	-.2264	-.2246		-.2246		-.2246	-.2284
	0.51		-.2284		-.2246		-.2246		-.2246	
	0.73		-.2284				-.2246			
	0.94		-.2246							
Nozzle 6	0.09		-.2328				-.2328		-.2328	
	0.30		-.2328				-.2328		-.2328	
	0.51		-.2328				-.2328		-.2328	
Star		0.00	-.1767							
		0.12				-.1788			-.1747	
		0.23							-.1767	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2264	-.0813	.1032	-.0751	-.2328		
				-.2304	.0042	.1756	-.0129	-.2017		
		-.2261	-.1988	-.2132	.0733	.1950	.0505	-.1743	-.1810	
		-.2246	-.1758	-.1671	.1338	.2129	.0863	-.1374	-.1770	-.2147
		-.1915	-.1656	-.1066	.1756	.2100	.0802	-.0820	-.1613	-.1915
α = -2°; q_∞ = 552; p_j/p_∞ = 6.2										
Nozzle 3	0.09		-.2118	-.2118	-.2058		-.2087		-.2044	-.2337
	0.30		-.2138	-.2138	-.2058		-.2087		-.2044	-.2138
	0.51		-.2138		-.2058		-.2087		-.2029	
	0.73		-.2118				-.2087			
	0.94		-.2058							
Nozzle 6	0.09		-.1910				-.2118		-.2160	
	0.30		-.2118				-.2140		-.2160	
	0.51		-.2140				-.2140		-.2160	
Star		0.00	-.0436							
		0.12				-.1432			-.1329	
		0.23							-.1807	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2201	-.0851	.1017	-.0789	-.2263		
				-.2160	.0074	.1745	-.0145	-.2015		
		-.2087	-.1971	-.2116	.0766	.1902	.0491	-.1741	-.1859	
		-.2203	-.1770	-.1669	.1356	.2062	.0882	-.1421	-.1799	-.2131
		-.1901	-.1626	-.1079	.1774	.2105	.0769	-.0863	-.1660	-.1901

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(b) $M_\infty = 2.00$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.2299	-.2299	-.2232		-.2232		-.2232	-.2140
	0.30		-.2279	-.2299	-.2217		-.2217		-.2232	-.2299
	0.51		-.2319		-.2217		-.2232		-.2232	
	0.73		-.2319				-.2217			
	0.94		-.2232							
Nozzle 6	0.09		-.2328				-.2328		-.2306	
	0.30		-.2328				-.2328		-.2328	
	0.51		-.2328				-.2328		-.2328	
Star		0.00	-.1975							
		0.12				-.1995			-.1955	
		0.23							-.1955	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2286	-.0959	.0762	-.0648	-.2348		
				-.2217	-.0101	.1425	-.0025	-.2058		
		-.2261	-.2074	-.2333	.0632	.1559	.0663	-.1743	-.1841	
		-.2275	-.1886	-.1930	.1236	.1638	.1021	-.1365	-.1783	-.2118
		-.1988	-.1743	-.1311	.1553	.1597	.0901	-.0787	-.1584	-.1886
$\alpha = -4^\circ$; $q_\infty = 552$; $p_j/p_\infty = 6.2$										
Nozzle 3	0.09		-.2136	-.2156	-.2058		-.2102		-.2058	-.2355
	0.30		-.2176	-.2176	-.2058		-.2087		-.2058	-.2176
	0.51		-.2176		-.2058		-.2073		-.2058	
	0.73		-.2176				-.2073			
	0.94		-.2058							
Nozzle 6	0.09		-.1931				-.2118		-.2140	
	0.30		-.2098				-.2118		-.2118	
	0.51		-.2118				-.2118		-.2118	
Star		0.00	-.0456							
		0.12				-.1495			-.1309	
		0.23							-.1807	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2160	-.0976	.0789	-.0644	-.2284		
				-.2073	-.0100	.1414	-.0020	-.2015		
		-.2102	-.2073	-.2203	.0606	.1493	.0615	-.1698	-.1897	
		-.2261	-.1901	-.1930	.1242	.1613	.1039	-.1397	-.1817	-.2102
		-.1986	-.1756	-.1309	.1559	.1602	.0854	-.0820	-.1618	-.1843

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6^{0} outward]

(b) $M_{\infty} = 2.00$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of							
			0^{0}	45^{0}	90^{0}	135^{0}	180^{0}	270^{0}	225^{0}	315^{0}
$\alpha = -8^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 0.0$										
Nozzle 3	0.09		-.2402	-.2422	-.2348		-.2348		-.2362	-.2283
	0.30		-.2402	-.2402	-.2348		-.2348		-.2362	-.2422
	0.51		-.2422		-.2348		-.2362		-.2362	
	0.73		-.2422				-.2348			
	0.94		-.2362							
Nozzle 6	0.09		-.2453				-.2493		-.2411	
	0.30		-.2473				-.2473		-.2473	
	0.51		-.2473				-.2493		-.2473	
Star		0.00	-.2120							
		0.12				-.2141			-.2120	
		0.23							-.2120	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2431	-.1560	.0679	-.0400	-.2286		
				-.2333	-.0751	.1365	.0181	-.1913		
		-.2348	-.2176	-.2420	-.0203	.1522	.0809	-.1600	-.1769	
		-.2377	-.2002	-.2045	.0286	.1680	.1207	-.1193	-.1649	-.2031
		-.2147	-.1888	-.1484	.0588	.1580	.1066	-.0579	-.1452	-.1743
$\alpha = -8^{0}$; $q_{\infty} = 552$; $p_j/p_{\infty} = 6.2$										
Nozzle 3	0.09		-.2157	-.2157	-.2119		-.2162		-.2075	-.2336
	0.30		-.2196	-.2196	-.2119		-.2162		-.2075	-.2196
	0.51		-.2196		-.2119		-.2148		-.2075	
	0.73		-.2196				-.2090			
	0.94		-.2061							
Nozzle 6	0.09		-.1956				-.2120		-.2204	
	0.30		-.2120				-.2120		-.2162	
	0.51		-.2162				-.2162		-.2184	
Star		0.00	-.0463							
		0.12				-.1541			-.1292	
		0.23							-.1789	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.2204	-.1561	.0677	-.0338	-.2204		
				-.2162	-.0753	.1362	.0199	-.1873		
		-.2162	-.2133	-.2191	-.0192	.1491	.0792	-.1587	-.1778	
		-.2290	-.1988	-.2046	.0284	.1650	.1219	-.1219	-.1699	-.2032
		-.2133	-.1889	-.1471	.0572	.1607	.1031	-.0622	-.1498	-.1730

*Denotes y -coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6^{o} outward]

(c) $M_{\infty} = 2.40$

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	270^{o}	225^{o}	315^{o}
$\alpha = 0^{o}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 3	0.09		-.1826	-.1826	-.1785		-.1785		-.1785	-.2003
	0.30		-.1852	-.1852	-.1785		-.1785		-.1785	-.1852
	0.51		-.1852		-.1767		-.1785		-.1785	
	0.73		-.1852				-.1785			
	0.94		-.1785							
Nozzle 6	0.09		-.1746				-.1852		-.1746	
	0.30		-.1799				-.1824		-.1852	
	0.51		-.1824				-.1824		-.1824	
Star		0.00	-.1351							
		0.12				-.1379			-.1326	
		0.23							-.1379	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1718	-.0486	.1115	-.0512	-.1746		
				-.1494	.0044	.1689	.0039	-.1510		
		-.1656	-.1273	-.1145	.0500	.1638	.0535	-.1163	-.1250	
		-.1530	-.1163	-.0909	.0920	.1638	.0865	-.0922	-.1149	-.1420
		-.1163	-.0982	-.0597	.1214	.1468	.0709	-.0496	-.1023	-.1145
$\alpha = 0^{o}$; $q_{\infty} = 436$; $p_j/p_{\infty} = 11.3$										
Nozzle 3	0.09		-.1205	-.1205	-.1257		-.1331		-.1312	-.1404
	0.30		-.1280	-.1255	-.1276		-.1276		-.1276	-.1255
	0.51		-.1255		-.1276		-.1294		-.1294	
	0.73		-.1255				-.1294			
	0.94		-.1239							
Nozzle 6	0.09		-.1195				-.1351		-.1379	
	0.30		-.1299				-.1351		-.1379	
	0.51		-.1351				-.1351		-.1351	
Star		0.00	.1560							
		0.12				.0145			.0170	
		0.23							-.0512	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1351	-.0408	.1166	-.0434	-.1351		
				-.1367	.0073	.1716	.0011	-.1379		
		-.1367	-.1239	-.1184	.0512	.1721	.0597	-.1131	-.1154	
		-.1478	-.1149	-.0911	.0968	.1746	.0876	-.0856	-.1081	-.1404
		-.1131	-.0984	-.0583	.1278	.1459	.0771	-.0429	-.0904	-.1131

*Denotes y-coordinates. See figure 8.

TABLE XVI.- Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -2^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 3	0.09		-.1778	-.1803	-.1751		-.1751		-.1751	-.1978
	0.30		-.1803	-.1803	-.1751		-.1751		-.1769	-.1803
	0.51		-.1803		-.1751		-.1751		-.1769	
	0.73		-.1803				-.1751			
	0.94		-.1769							
Nozzle 6	0.09		-.1874				-.1927		-.1900	
	0.30		-.1927				-.1927		-.1927	
	0.51		-.1927				-.1927		-.1900	
Star		0.00	-.1530							
		0.12				-.1558			-.1505	
		0.23							-.1505	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1874	-.0502	.1000	-.0530	-.1847		
				-.1751	.0204	.1647	-.0055	-.1636		
		-.1604	-.1383	-.1512	.0679	.1709	.0530	-.1166	-.1200	
		-.1475	-.1166	-.1166	.1062	.1709	.0808	-.0849	-.1101	-.1420
		-.1147	-.1055	-.0727	.1264	.1500	.0730	-.0450	-.0925	-.1166
$\alpha = -2^{\circ}$; $q_{\infty} = 436$; $p_j/p_{\infty} = 11.3$										
Nozzle 3	0.09		-.1300	-.1325	-.1277		-.1313		-.1295	-.1499
	0.30		-.1350	-.1350	-.1277		-.1277		-.1277	-.1350
	0.51		-.1350		-.1277		-.1277		-.1277	
	0.73		-.1350				-.1277			
	0.94		-.1185							
Nozzle 6	0.09		-.1219				-.1378		-.1403	
	0.30		-.1325				-.1378		-.1403	
	0.51		-.1378				-.1378		-.1403	
Star		0.00	.1483							
		0.12				.0066			.0119	
		0.23							-.0511	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1378	-.0433	.1091	-.0458	-.1430		
				-.1295	.0238	.1644	.0014	-.1430		
		-.1332	-.1332	-.1384	.0695	.1717	.0511	-.1148	-.1224	
		-.1421	-.1148	-.1148	.1077	.1692	.0860	-.0921	-.1148	-.1384
		-.1185	-.1020	-.0692	.1297	.1533	.0688	-.0495	-.0947	-.1148

*Denotes y -coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(c) $M_{\infty} = 2.40$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -4^{\circ}$; $q_{\infty} = 435$; $p_j/p_{\infty} = 0.0$										
Nozzle 3	0.09		-.1775	-.1826	-.1729		-.1729		-.1748	-.2028
	0.30		-.1851	-.1851	-.1748		-.1748		-.1748	-.1851
	0.51		-.1851		-.1748		-.1748		-.1748	
	0.73		-.1851				-.1748			
	0.94		-.1748							
Nozzle 6	0.09		-.1796				-.1849		-.1823	
	0.30		-.1849				-.1849		-.1849	
	0.51		-.1849				-.1876		-.1849	
Star		0.00	-.1559							
		0.12				-.1612			-.1534	
		0.23							-.1534	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1796	-.0613	.0886	-.0349	-.1771		
				-.1766	.0119	.1435	.0124	-.1559		
		-.1637	-.1474	-.1656	.0613	.1449	.0694	-.1162	-.1196	
		-.1566	-.1309	-.1401	.1052	.1449	.0997	-.0893	-.1095	-.1401
		-.1327	-.1144	-.0907	.1070	.1399	.0818	-.0390	-.0944	-.1162
$\alpha = -4^{\circ}$; $q_{\infty} = 436$; $p_j/p_{\infty} = 11.3$										
Nozzle 3	0.09		-.1326	-.1326	-.1278		-.1296		-.1278	-.1525
	0.30		-.1376	-.1376	-.1278		-.1278		-.1260	-.1376
	0.51		-.1376		-.1260		-.1260		-.1241	
	0.73		-.1351				-.1241			
	0.94		-.1205							
Nozzle 6	0.09		-.1221				-.1404		-.1431	
	0.30		-.1379				-.1404		-.1404	
	0.51		-.1379				-.1404		-.1431	
Star		0.00	.1454							
		0.12				.0037			.0089	
		0.23							-.0566	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1404	-.0591	.0877	-.0330	-.1456		
				-.1296	.0071	.1456	.0117	-.1456		
		-.1349	-.1333	-.1314	.0618	.1463	.0660	-.1150	-.1225	
		-.1440	-.1333	-.1422	.1037	.1486	.1019	-.0898	-.1124	-.1385
		-.1314	-.1113	-.0911	.1111	.1385	.0783	-.0447	-.0923	-.1168

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(c) $M_\infty = 2.40$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -8°$; $q_\infty = 435$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.1852	-.1877	-.1861		-.1842		-.1861	-.1978
	0.30		-.1927	-.1927	-.1861		-.1861		-.1861	-.1927
	0.51		-.1927		-.1861		-.1861		-.1861	
	0.73		-.1927				-.1879			
	0.94		-.1861							
Nozzle 6	0.09		-.1877				-.1927		-.1902	
	0.30		-.1902				-.1927		-.1927	
	0.51		-.1902				-.1927		-.1902	
Star		0.00	-.1666							
		0.12				-.1691			-.1666	
		0.23							-.1666	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1849	-.1140	.0909	-.0062	-.1691		
				-.1842	-.0583	.1514	.0358	-.1429		
		-.1769	-.1567	-.1769	-.0163	.1590	.0961	-.1094	-.1124	
		-.1695	-.1459	-.1459	.0128	.1689	.1296	-.0748	-.1049	-.1349
		-.1459	-.1367	-.1113	.0165	.1425	.1088	-.0296	-.0796	-.1094
$\alpha = -8°$; $q_\infty = 436$; $p_j/p_\infty = 11.3$										
Nozzle 3	0.09		-.1350	-.1350	-.1366		-.1384		-.1348	-.1476
	0.30		-.1451	-.1451	-.1348		-.1366		-.1348	-.1451
	0.51		-.1426		-.1348		-.1348		-.1348	
	0.73		-.1426				-.1348			
	0.94		-.1348							
Nozzle 6	0.09		-.1375				-.1428		-.1456	
	0.30		-.1456				-.1456		-.1456	
	0.51		-.1456				-.1456		-.1456	
Star		0.00	.1465							
		0.12				.0018			.0096	
		0.23							-.0562	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1456	-.1164	.0807	-.0115	-.1508		
				-.1384	-.0582	.1515	.0360	-.1403		
		-.1366	-.1295	-.1384	-.0181	.1586	.0958	-.1057	-.1151	
		-.1403	-.1403	-.1440	.0092	.1685	.1297	-.0798	-.1050	-.1332
		-.1458	-.1332	-.1112	.0110	.1442	.1059	-.0321	-.0823	-.1093

*Denotes y -coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6^{0} outward]

(d) $M_{\infty} = 2.87$

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
			$\alpha = 0^{0}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$							
Nozzle 3	0.09		-.1376	-.1445	-.1369		-.1316		-.1343	-.1122
	0.30		-.1376	-.1445	-.1343		-.1369		-.1369	-.1445
	0.51		-.1445		-.1369		-.1369		-.1343	
	0.73		-.1445				-.1369			
	0.94		-.1369							
Nozzle 6	0.09		-.1320				-.1432		-.1432	
	0.30		-.1432				-.1471		-.1471	
	0.51		-.1471				-.1471		-.1471	
Star		0.00	-.1283							
		0.12				-.1283			-.1244	
		0.23							-.1244	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1283	-.0263	.1017	-.0339	-.1395		
				-.1106	.0201	.1511	.0076	-.1244		
		-.1158	-.0872	-.0846	.0569	.1399	.0500	-.0793	-.0869	
		-.0974	-.0740	-.0583	.0803	.1257	.0777	-.0655	-.0760	-.0872
		-.0740	-.0583	-.0296	.0961	.0803	.0609	-.0365	-.0583	-.0767
			$\alpha = 0^{0}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.1$							
Nozzle 3	0.09		-.0563	-.0563	-.0537		-.0563		-.0589	-.0916
	0.30		-.0599	-.0563	-.0563		-.0563		-.0589	-.0563
	0.51		-.0563		-.0563		-.0563		-.0563	
	0.73		-.0563				-.0537			
	0.94		-.0537							
Nozzle 6	0.09		-.0543				-.0579		-.0579	
	0.30		-.0579				-.0579		-.0579	
	0.51		-.0579				-.0579		-.0579	
Star		0.00	.4149							
		0.12				.2101			.2176	
		0.23							.1208	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.0468	-.0020	.1283	-.0095	-.0504		
				-.0668	.0193	.1522	.0314	-.0504		
		-.0668	-.0615	-.0720	.0556	.1459	.0609	-.0720	-.0563	
		-.0720	-.0694	-.0668	.0844	.1319	.0766	-.0422	-.0599	-.0746
		-.0769	-.0615	-.0353	.0949	.0792	.0681	-.0206	-.0455	-.0769

*Denotes y -coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.1376	-.1412	-.1343		-.1343		-.1343	-.1087
	0.30		-.1376	-.1412	-.1449		-.1370		-.1343	-.1412
	0.51		-.1412		-.1370		-.1343		-.1343	
	0.73		-.1412				-.1370			
	0.94		-.1370							
Nozzle 6	0.09		-.1284				-.1396		-.1396	
	0.30		-.1396				-.1432		-.1432	
	0.51		-.1432				-.1432		-.1432	
Star		0.00	-.1320							
		0.12				-.1357			-.1284	
		0.23							-.1284	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1357	-.0191	.1087	-.0342	-.1357		
				-.1317	.0250	.1557	.0108	-.1209		
		-.1160	-.0926	-.1081	.0618	.1534	.0529	-.0821	-.0801	
		-.1054	-.0821	-.0847	.0877	.1462	.0746	-.0621	-.0693	-.0874
		-.0847	-.0664	-.0480	.0956	.0956	.0637	-.0299	-.0512	-.0716
$\alpha = -2^\circ$; $q_\infty = 304$; $p_j/p_\infty = 23.1$										
Nozzle 3	0.09		-.0589	-.0589	-.0589		-.0563		-.0589	-.0982
	0.30		-.0661	-.0661	-.0589		-.0563		-.0563	-.0661
	0.51		-.0661		-.0563		-.0563		-.0563	
	0.73		-.0625				-.0563			
	0.94		-.0563							
Nozzle 6	0.09		-.0684				-.0720		-.0720	
	0.30		-.0684				-.0720		-.0720	
	0.51		-.0684				-.0720		-.0684	
Star		0.00	.3973							
		0.12				.1908			.2019	
		0.23							.1044	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.0645	-.0232	.1080	-.0232	-.0684		
				-.0668	.0272	.1522	.0144	-.0684		
		-.0694	-.0615	-.0615	.0609	.1522	.0520	-.0746	-.0553	
		-.0746	-.0769	-.0848	.0870	.1486	.0713	-.0481	-.0589	-.0769
		-.0848	-.0668	-.0510	.0923	.0975	.0628	-.0268	-.0445	-.1214

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Continued

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6^{o} outward]

(d) $M_{\infty} = 2.87$ - Continued

Location	x, in.	r, in.	C_p at ϕ of							
			0^{o}	45^{o}	90^{o}	135^{o}	180^{o}	270^{o}	225^{o}	315^{o}
$\alpha = -4^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 0.0$										
Nozzle 3	0.09		-.1376	-.1409	-.1343		-.1343		-.1370	-.1123
	0.30		-.1376	-.1445	-.1370		-.1396		-.1370	-.1445
	0.51		-.1445		-.1370		-.1370		-.1370	
	0.73		-.1445				-.1370			
	0.94		-.1370							
Nozzle 6	0.09		-.1357				-.1472		-.1472	
	0.30		-.1472				-.1472		-.1472	
	0.51		-.1472				-.1472		-.1472	
Star		0.00	-.1396							
		0.12				-.1432			-.1396	
		0.23							-.1396	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1432	-.0378	.0828	-.0266	-.1396		
				-.1370	.0171	.1347	.0187	-.1281		
		-.1186	-.1028	-.1186	.0539	.1324	.0677	-.0821	-.0834	
		-.1133	-.0847	-.0900	.0719	.1251	.0851	-.0657	-.0726	-.0900
		-.0874	-.0742	-.0611	.0693	.0982	.0677	-.0332	-.0549	-.0742
$\alpha = -4^{o}$; $q_{\infty} = 304$; $p_j/p_{\infty} = 23.2$										
Nozzle 3	0.09		-.0692	-.0692	-.0587		-.0561		-.0587	-.1013
	0.30		-.0797	-.0797	-.0561		-.0561		-.0561	-.0797
	0.51		-.0761		-.0561		-.0561		-.0561	
	0.73		-.0761				-.0561			
	0.94		-.0534							
Nozzle 6	0.09		-.0682				-.0718		-.0682	
	0.30		-.0682				-.0682		-.0682	
	0.51		-.0682				-.0682		-.0682	
Star		0.00	.3983							
		0.12				.1875			.1990	
		0.23							.1049	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.0682	-.0344	.0859	-.0118	-.0718		
				-.0767	.0197	.1397	.0220	-.0718		
		-.0692	-.0613	-.0666	.0561	.1256	.0607	-.0718	-.0656	
		-.0666	-.0692	-.0793	.0770	.1148	.0823	-.0548	-.0692	-.0767
		-.0872	-.0744	-.0666	.0613	.1007	.0607	-.0331	-.0548	-.0767

*Denotes y-coordinates. See figure 8.

TABLE XVI. - Concluded

PRESSURE COEFFICIENTS MEASURED ON NOZZLES AND SHROUD OF THE SATURN MODEL WITH AND WITHOUT SIMULATED FLOW

[Basic shroud length (single flare) with engine 1 out and engines 2, 3, and 4 gimbaled 6° outward]

(d) $M_\infty = 2.87$ - Concluded

Location	x, in.	r, in.	C_p at ϕ of 0°	45°	90°	135°	180°	270°	225°	315°
$\alpha = -8^o$; $q_\infty = 304$; $p_j/p_\infty = 0.0$										
Nozzle 3	0.09		-.1409	-.1445	-.1419		-.1396		-.1419	-.1123
	0.30		-.1409	-.1445	-.1445		-.1396		-.1419	-.1445
	0.51		-.1445		-.1419		-.1396		-.1396	
	0.73		-.1445				-.1472			
	0.94		-.1445							
Nozzle 6	0.09		-.1360				-.1396		-.1396	
	0.30		-.1396				-.1396		-.1396	
	0.51		-.1396				-.1396		-.1396	
Star		0.00	-.1396							
		0.12				-.1396			-.1360	
		0.23							-.1360	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.1396	-.0719	.0893	.0069	-.1360		
				-.1419	-.0322	.1429	.0519	-.0982		
		-.1343	-.1212	-.1317	-.0062	.1501	.0999	-.0716	-.0834	
		-.1265	-.1107	-.1081	.0095	.1429	.1143	-.0549	-.0726	-.0897
		-.0976	-.0949	-.0844	-.0036	.1012	.0890	-.0187	-.0476	-.0690
$\alpha = -8^o$; $q_\infty = 304$; $p_j/p_\infty = 23.2$										
Nozzle 3	0.09		-.0764	-.0764	-.0666		-.0692		-.0692	-.1052
	0.30		-.0800	-.0800	-.0666		-.0666		-.0692	-.0800
	0.51		-.0764		-.0613		-.0613		-.0613	
	0.73		-.0764				-.0613			
	0.94		-.0587							
Nozzle 6	0.09		-.0869				-.0869		-.0869	
	0.30		-.0869				-.0869		-.0905	
	0.51		-.0869				-.0905		-.0905	
Star		0.00	.3879							
		0.12				.1770			.1882	
		0.23							.0902	
		1*	2*	3*	4*	5*	6*	7*	8*	9*
Shroud				-.0944	-.0905	.0751	.0000	-.0944		
				-.0820	-.0272	.1423	.0338	-.0980		
		-.0793	-.0718	-.0820	-.0039	.1466	.0997	-.0692	-.0728	
		-.0744	-.0692	-.0846	.0144	.1429	.1190	-.0439	-.0692	-.0846
		-.0872	-.0820	-.0767	.0039	.1059	.0961	-.0154	-.0439	-.0639

*Denotes y -coordinates. See figure 8.